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FIRST ANNUAL REPORT

STATE BOARD OF HEALTH.

KANSAS.

1885.

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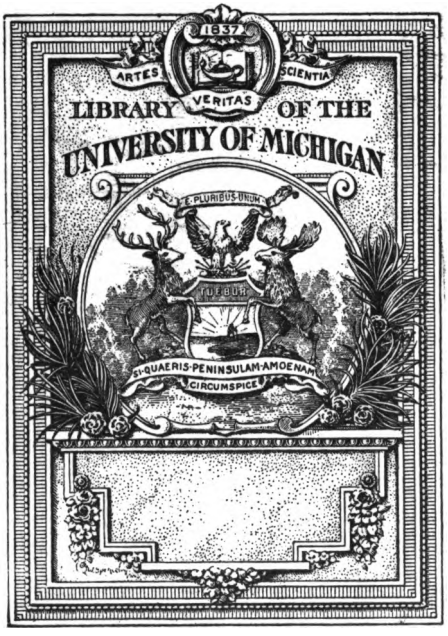

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FIRST ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

OF THE

STATE OF KANSAS,

FROM ITS ORGANIZATION, APRIL 10, 1885, AND
ENDING DECEMBER 31, 1885.

TOPEKA:
KANSAS PUBLISHING HOUSE: T. D. THACHER, STATE PRINTER.
1886.

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MEMBERS OF THE BOARD.

G. H. T. JOHNSON, M. D., President	Atchison	Term expires March 28, 1887
G. H. GUIBOR, M. D.	Beloit	Term expires March 28, 1888
D. SURBER, M. D.	Perry	Term expires March 28, 1888
D. W. STORMONT, M. D.	Topeka	Term expires March 28, 1887
J. MILTON WELCH, M. D.	La Cygne	Term expires March 28, 1887
H. S. ROBERTS, M. D.	Manhattan	Term expires March 28, 1886
J. W. JENNY, M. D.	Salina	Term expires March 28, 1888
W. L. SCHENCK, M. D.	Osage City	Term expires March 28, 1886
T. A. WRIGHT, M. D.	Americus	Term expires March 28, 1886

SECRETARY, J. W. REDDEN, M. D., Topeka.

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KANSAS STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
TOPEKA, KANSAS, 1885.

To his Excellency JOHN A. MARTIN, *Governor:*

SIR: In conformity with the eleventh section of the act to create and establish a State and local boards of health in the State of Kansas, approved March 7, 1885, I have the honor to submit to you the accompanying report for the year 1885.

Very respectfully,

J. W. REDDEN, M. D., *Secretary.*

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COUNTY HEALTH OFFICERS.

The following is a list of the county health officers in the various counties in the State:

County.	*Town.*	*Health Officer.*
Allen	Moran	J. E. Jewell, M. D.
Anderson	Garnett	A. L. Burson, M. D.
Atchison	Atchison	W. A. Furguson, M. D.
Barber	Medicine Lodge	B. R. Burney, M. D.
Barton	Great Bend	S. J. Shaw, M. D.
Bourbon	Fort Scott	R. Aikman, M. D.
Brown	Hiawatha	W. W. Nye, M. D.
Butler	El Dorado	J. A. McKenzie, M. D.
Chase	Cottonwood Falls	C. E. Hait, M. D.
Chautauqua	Sedan	J. M. Endicott, M. D.
Comanche		
Clark	Ashland	H. S. Parks, M. D.
Cherokee		
Clay	Clay Center	S. E. Reynolds, M. D.
Cloud	Concordia	L. D. Hall, M. D.
Coffey	Burlington	Wm. Manson, M. D.
Cowley	Winfield	Geo. Emerson, M. D.
Crawford	Girard	T. J. Alexander, M. D.
Davis	Junction City	P. Dougherty, M. D.
Decatur	Oberlin	A. W. Baritan, M. D.
Dickinson		
Doniphan		
Douglas	Lawrence	N. Simmons, M. D.
Edwards	Kinsley	B. R. Mosher.
Elk	Moline	E. L. Hart, M. D.
Ellis	Hays City	Geo. B. Snyder, M. D.
Ellsworth	Ellsworth	J. R. Doig, M. D.
Ford	Dodge City	G. L. McCarthy, M. D.
Franklin	Ottawa	J. G. Van Schoick.
Finney	Garden City	H. S. Lourance, M. D.
Graham	Millbrook	H. J. Fuller, M. D.
Greenwood	Eureka	F. M. Watson, M. D.
Harper	Harper	W. G. Muir, M. D.
Harvey	Newton	James R. Duncan, M. D.
Hodgeman	Jetmore	M. F. Rolens, M. D.
Jackson	Holton	J. A. Rafter, M. D.
Jefferson	Oskaloosa	W. H. Buckmaster, M. D.
Jewell	Mankato	Walter Crew, M. D.
Johnson	Olathe	R. A. Williams, M. D.
Kingman	Kingman	J. W. Light, M. D.
Labette	Oswego	E. E. Liggett.
Leavenworth		
Lincoln	Lincoln	N. C. Faucher, M. D.
Linn	Mound City	I. E. Coe, M. D.
Lyon	Emporia	J. W. Burke, M. D.
Marion	Marion	J. W. Hannaford, M. D.
Marshall	Frankfort	W. H. Clutter, M. D.
McPherson	McPherson	J. O. Day, M. D.
Miami	Louisburg	J. D. Bryan, M. D.
Mitchell	Beloit	Guibor & O'Brien, M. D.
Montgomery	Elk City	W. W. Woodring, M. D.
Morris	Council Grove	D. H. Painter, M. D.

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COUNTY HEALTH OFFICERS—CONCLUDED.

County.	*Town.*	*Health Officer.*
Nemaha	Centralia	A. J. Best, M. D.
Neosho	Erie	J. W. Alford, M. D.
Ness	Ness City	J. S. Burne, M. D.
Norton	Norton	E. M. Turner, M. D.
Osage	Burlingame	James Haller, M. D.
Osborne	Osborne	F. A. Hall, M. D.
Ottawa	Minneapolis	James McHenry, M. D.
Pawnee	Larned	J. M. Cummings, M. D.
Phillips	Marvin	J. Miley, M. D.
Pottawatomie	Westmoreland	C. A. Skene, M. D.
Pratt	Iuka	Thomas McIlvane, M. D.
Rawlins	Ludell	J. L. Cunstable, M. D.
Reno	Hutchinson	S. H. Sidlinger, M. D.
Republic	Belleville	C. M. Arbuthnot, M. D.
Rice	Lyons	N. F. Terry, M. D.
Riley	Manhattan	C. F. Little, M. D.
Rooks	Stockton	F. Robbins, M. D.
Rush	La Crosse	Wm. M. Goodwin, M. D.
Russell	Russell	J. W. Long, M. D.
Saline	Salina	E. R. Switzer, M. D.
Sedgwick	Wichita	A. M. F. McCullough, M. D.
Shawnee	Topeka	J. P. Lewis, M. D.
Sheridan	Kenneth	D. M. Freeman, M. D.
Smith	Smith Center	O. P. Daly, M. D.
Stafford	St. John	C. N. Maxfield, M. D.
Sumner	Wellington	J. B. Wood, M. D.
Thomas	Colby	W. M. Edwards, M. D.
Trego	Wakeeney	W. R. Wilcox, M. D.
Wabaunsee	Alma	Nathan Hughes, M. D.
Washington	Washington	Chas. Williamson, M. D.
Wilson	Fredonia	F. M. Wiley, M. D.
Woodson	Yates Center	E. H. Kellenberger, M. D.
Wyandotte	Wyandotte	Peter Eager, M. D.

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REPORT OF THE BOARD.

To Hon. John A. Martin, *Governor:*

Herewith is presented the first annual report of the State Board of Health, from its organization, April 10, 1885, up to December, 1885.

The time of the Board has been largely taken up by the work of the organization—getting out the necessary blanks, circular letters of instruction, adopting the rules and regulations for the government of local health boards, etc.

In consequence of many portions of the law creating the State and local health boards being clearly advisory, rather than mandatory, the health organizations have been deprived of the authority, necessary in many instances, to command respect, and prompt compliance with many rules and regulations, which in their very essence would promote the public health, and prevent or control fatal epidemics, and add greatly to personal and public prosperity and happiness.

The failure of the Legislature, at its last session, to pass the necessary appropriation, so as to enable the State Board the more thoroughly and efficiently to prosecute the sanitary work in every county in the State, has in a great degree prevented the State Board from accomplishing more satisfactory results, and commanding the full and entire confidence of the masses of the people, in recognizing and faithfully executing all the rules and regulations that have for their object the prevention of disease, and the promotion of the prosperity and peace of the people.

Effort will be continued to educate the people as to the needs of improved sanitary and hygienic conditions, and how to avoid those diseases having their source in the neglect of sanitary rules.

The wisdom of the law in creating the State Board of Health, and the value of the Board, is being appreciated by the people, and is placed beyond question; and this work of the Board will be enlarged as emergencies arise, and as the people are prepared to accept, indorse and enforce it.

You are respectfully referred to the report of the Secretary, presented herewith, for an account, as complete as space will permit, of the chief work done by the Board during the brief period covered by this report; and of the more important instances in which disease has made its appearance in various counties of our State; and the prompt and thorough manner that the various county health officers have promoted sanitary reform, prevented or controlled fatal epidemics, and watched and protected the public health.

It gives us great pleasure to report that the State is at present exception-

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ally free from any form of epidemic disease—due mainly to the watchful care and prompt action of the efficient county health officers in every portion of this Commonwealth, who are the faithful guardians of the welfare of the people.

We think every intelligent citizen must see the importance of accurate vital and mortuary statistics. Those given us by the last census will fall from three to five per cent. below accuracy.

A more important work than these statistics, is the prevention of disease. Hundreds of thousands of lives are annually prematurely cut short, that might be prolonged for years were the people instructed in sanitary matters, and an effective organization in operation to look after the sanitary condition of the people. Boards of health, National, State, and Municipal, must do this great work or it will be left undone. We know there are many who think we are governed too much, and have too many officers; yet these must admit that the health of the people is of greater importance than that of our domestic animals. National and State organizations exist and are paid to look after the health and general condition of our animals.

What our State Board needs, in our estimation, is more authority, so that we may enforce absolute obedience to our rules and regulations, and enforce and collect fines for disobeying the same.

In our judgment, a State Board of Health, amply equipped to do effective work, is of the greatest importance to our people. It is possible to greatly elevate the standard of health, by looking after the sanitary condition of our State, and thus save annually many valuable lives. Let Kansas take the lead in sanitary reform, as she has in all progressive movements of the last quarter of a century.

The Secretary in his report has referred at length to the very important part of the work of the Board that has been accomplished in connection with the establishment of local boards of health, effectively organized in the various counties of the State, in accordance with sections 7 and 8, chapter 129, Laws 1885, which provide for the organization of such a board in every county. Out of the eighty-five organized counties in the State, all but six counties have efficient and active local or county health boards; and have in so short a time, accomplished results that have proved of incalculable benefit to the health and comfort of the people of their respective counties. By means of these organizations, this Board has come into close and intimate relations with the local health authorities, and has introduced sanitary measures that the people not only approve, but appreciate the benefits resulting therefrom.

The registration is not as complete and accurate as we desired that it should be, but it is as satisfactory as could have been expected, considering that we could not legally enforce the penalty for failure to comply with the provisions of the registration rule.

Accurate and reliable compilation of vital statistics is of paramount importance and of inestimable value. We have inaugurated a system which

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is meeting with general approval, and promises, during the year 1886, to be very reliable and complete. And when we remember that no other State department has ever attempted to compile it, we may reasonably conclude that it will be more fully appreciated for its intrinsic value and incalculable importance.

Considerable attention is being given by our various local health boards, to the quality of our food supply; especially the condition of the meat, and also the purity of the water used for drinking and culinary purposes, and the sanitary conditions surrounding the same; and no subject can possibly be of greater importance to the comfort, health, and physical and mental development of individuals, communities and commonwealths.

Thus far, that panic-producing plague, *cholera*, has not invaded our seaports, but still it threatens our peaceful shores in the near future. And that demoralizing epidemic, *small-pox*, has invaded a few of our northern States; but the efficiency of the National and State Boards of Health has up to the present held it in complete control. If we, as a State, entirely escape the visitation of these dreaded *epidemics*, we must invest our State and local boards of health with plenary power and authority to act promptly and efficiently in any emergency, and place at their disposal funds sufficient to guarantee the security and protection of our exposed frontier counties and our thickly-populated cities.

We would therefore suggest that a prudent regard for the probable danger of the introduction of cholera and small-pox at localities where the local authorities are unable to battle with them successfully, suggests the propriety of an appropriation by the State Legislature for an epidemic contingent fund, to be placed at the disposal of the Governor of the State, to be used under the direction of the State Board of Health, in case of *necessity*, for preventing the introduction or spread of *cholera* or *small-pox*.

The various reports of the county health officers will show that in many counties those fatal and dreaded epidemics, small-pox, scarlet fever, diphtheria, and typhoid fever, have been checked, isolated, controlled, and stamped out—frequently confined to an individual, or to a single family; and already our faithful health officers have saved to the counties, as well as to our State, in actual money, an hundred fold in capital, with compound interest, for every dollar our Legislature may appropriate for the use of the State Board—not including the hundreds of valuable and useful lives that have been saved to many communities and families.

With proper encouragement and financial aid, the future is very promising for great achievements and desirable reforms, in every department of sanitary science. Very respectfully,

G. H. T. JOHNSON, *President.*	C. H. GUIBOR.
D. SURBER.	D. W. STORMONT.
J. MILTON WELCH.	H. S. ROBERTS.
J. W. JENNY.	W. L. SCHENCK.
T. A. WRIGHT.	J. W. REDDEN, *Secretary.*

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PROCEEDINGS OF THE BOARD.

TOPEKA, April 10, 1885.

The members of the Kansas State Board of Health, having taken the prescribed oath, met at the office of Dr. Stormont.

Present: Drs. C. H. Guibor, of Beloit; D. Surber, of Perry; J. W. Jenny, of Salina; D. W. Stormont, of Topeka; J. M. Welch, of La Cygne; G. H. T. Johnson, of Atchison; H. S. Roberts, of Manhattan; T. A. Wright, of Americus; W. L. Schenck, of Osage City.

A temporary organization was effected by electing Dr. Welch as President, and Dr. Schenck as Secretary.

Upon motion of Dr. Guibor, the Board decided to enter into the election of permanent officers.

It was moved and carried that the Board proceed to ballot for a permanent President, and when elected, that he shall serve until the annual meeting in 1886.

The result of the ballot being, Welch one, Stormont two, and Johnson six, Dr. Johnson was declared elected permanent President.

Upon motion of Dr. Wright, nominations were made for permanent Secretary. Drs. J. W. Redden, H. W. Roby, W. W. Cochrane and John E. Rastall were placed in nomination. The result of the ballot being, Roby two, Rastall one, and Redden six, Dr. Redden was declared permanent Secretary.

On motion, a committee of three was appointed to draft the rules and order of business provided for in the first clause of section 2, of the act to create a State Board of Health, etc. Drs. Stormont, Welch and Roberts were appointed said committee.

The temporary Secretary was appointed a committee to wait upon the permanent Secretary elect and inform him of his election.

The permanent Secretary was appointed a committee to confer with other State boards of health, and prepare and report at the annual meeting in June the various forms for collecting statistics, &c., provided for in the act creating the State Board of Health. He was also instructed to notify without delay the Commissioners for the several counties in the State, that the State Board of Health is duly organized, and request them to appoint the local health officer, as provided for in the act creating the State Board of Health.

On motion, the meeting adjourned until 8 P. M.

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8 P. M.—The State Board of Health was called to order by the President, pursuant to adjournment. All of the members were present.

President Johnson delivered an able and entertaining address, as follows:

Members of the State Board of Health—GENTLEMEN: In taking my seat as presiding officer of this body at this, our first meeting, permit me to express my appreciation of the importance of the work we have been commissioned to perform by the Legislature of the State.

The first duty of the Board is to aid in checking the spread of contagious diseases, and prevent the development of all preventable diseases; in a word, to instruct our people in sanitary science.

Within the last decade, great and rapid advances have been made in this science; a great and good work has been wrought, but much yet remains to be done. Sanitation is the watchword of the medical reformer of the present and future, and preventive treatment the coming popular system of practice. He who prevents the development of disease is a greater benefactor of his race than he who cures disease.

In this age of progress, arts, literature, and science, it is not strange that the masses of the people seek more light from a sanitary standpoint, and desire to be instructed in that which contributes to their health, happiness, and length of days.

Some of the causes of sickness I will briefly mention:

First, bad air. In Kansas, (supposed by some to be the home of the cyclone,) we have usually a pure, health-giving air; but even here, where nature, by winds, lightning, storms, and cyclones, is vigorously at work purifying the air, we find it at times, and in some localities, made impure by the carelessness of man, by dumping his filth and garbage near human habitations, and by a bad system of sewerage, or no sewerage at all.

Kansas is blessed above all other States in her system of public schools, the number and size of her school houses, and yet our school children are daily poisoned by impure air; and my experience as a practicing physician is, that sickness increases among the children as soon as school opens, and decreases when it closes. We need a better system of ventilation, and better methods of heating our school houses.

A second and frequent cause of sickness is impure drinking water. The death angel has frequently visited the sacred precincts of home, and gathered from the family garden its brightest flowers, because the water supply has become impure. Let us urge upon the people the vital importance of an abundance of pure water, and the great danger of well-water being poisoned by surface drainage, or if wells are within fifty feet of our houses, sewerage or waste-pipes. Since Atchison has been supplied with a new system of water works with an abundance of Missouri river water, the per cent. of sickness has decreased, and the type of disease is less malignant than before we commenced to use this water.

The question of adulteration of food supply demands the earnest attention of all boards of health as well as all hygienists, or those working in the field of sanitary science. As a board of health, it is our highest duty to promote sanitary science and its diffusion among the people. The sanitary battle must finally be fought by the people themselves. We may by quarantine fence back for some time the invading march of the epidemic; we may display our warning signals when the plague is in the houses, but it is for the people to face the enemy when he comes, and favor his advance by their ignorance, neglect and terrors, or stay his progress by barricades of

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clean houses, care and courage. The best quarantine is a thoroughly instructed people.

I would not lessen nor remit the other important labors set by the laws for the State Board of Health, but I would most earnestly call your attention to the great sanitary problems to be solved, and the sanitary reforms to be set in motion for our whole State.

Dr. Guibor read a letter from the editor of the *Sanitary News*, asking a copy of the act organizing the State Board of Health, and members of the Board, for publication. The Secretary was instructed to furnish the same.

Dr. Guibor moved to proceed to the consideration of the salary of the Secretary.

Dr. Stormont moved to lay said resolution on the table until the annual meeting in June. The motion to lay on the table prevailed.

On motion of Dr. Guibor, it was ordered that no proceedings of the Board shall be published until the minutes are accurately prepared by the Secretary, and that he furnish the papers copies of the same for publication as early as possible.

On motion of Dr. Stormont, it was ordered that no officer or member of this Board shall be allowed to use his official position as an advertisement for his professional business.

On motion of Dr. Roberts, when the Board adjourn it shall adjourn to meet in regular annual session at 4 o'clock P. M., on Thursday, June 11th, 1885.

On motion of Dr. Stormont, the Secretary was instructed to see the Excutive Council, and have suitable and convenient rooms provided for the use of the Board of Health, before the annual meeting in June, and notify the members of the Board.

On motion of Dr. Stormont, the Secretary was instructed to procure a suitable seal for the State Board of Health, same to be approved by the Committee on Rules.

On motion of Dr. Roberts, the Secretary was instructed to procure suitable records for the proceedings of the Board, and stationery for their use.

On motion of Dr. Stormont, the President was authorized to call the Board together at any time and place he may think best, in case of threatened cholera epidemic.

The proceedings of the Board of the afternoon and night sessions were read and approved. J. W. REDDEN, *Secretary.*

TOPEKA, June 11, 1885.

The Kansas State Board of Health convened in annual meeting at the office of the Secretary, at 4 P. M.

Upon roll call, the following members were present: Drs. Johnson, Welch, Stormont, Roberts, Surber, Schenck, and Guibor. Drs. Wright and Jenny were absent.

The minutes of the last meeting were read and approved.

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The Attorney General of the State was called upon to give his opinion as to the powers and authority of the Board under our law to attach penalties for the non-faithful performance of all rules and orders authorized by the Board.

The Attorney General gave a lengthy and specific talk upon the powers and scope of the law, and authority to enforce penalties; and gave a favorable opinion upon the general construction of the law, and will give written opinion upon any section when requested.

Special committee reported order of business, which was adopted, as follows: Roll call, reading minutes of last meeting, report of secretary, report of executive committee, communications to the board, reports of papers, reports of standing committees, reports of special committees, auditing bills and expense of members, unfinished business, new business, miscellaneous business, election of officers, adjournment.

The report of the Secretary was read and approved, as follows:

GENTLEMEN—Since our first meeting, the duties of the Secretary have been onerous and varied, requiring time, labor, patience and energy, as we were without funds, and very few were familiar with the provisions or object of the Kansas State Board of Health law. In compliance with the resolution passed at the first meeting of the Board, I met the Executive Council in session, and called their attention to the last clause of section 1 of our law, which reads: "The Executive Council shall provide the State Board of Health a suitable office at the city of Topeka, for the transaction of business." Said Council appointed a committee of three of their members to consult with the Secretary of the State Board of Health, and carry out the provision of said clause. The present quarters were selected, rented, and furnished. Then it required some time to prepare a circular informing the county boards that they should appoint local health officers for their respective counties. The following circular was issued:

OFFICE OF SECRETARY OF STATE BOARD OF HEALTH,
TOPEKA, KANSAS, May 15th, 1885.

Chairman of the Board of County Commissioners of ——— *County*—DEAR SIR: The Kansas State Board of Health have been duly organized, and are making preparations for active business.

I am instructed to communicate with you, and request that you appoint your local health officer, who is to operate in conjunction with your Board, in and for your county, as provided in the law creating the Kansas State Board of Health. Said health officer must be a physician, and should be one of experience and standing, and an expert in sanitary science. Have your county clerk notify me as soon as said health officer is appointed, and request him to correspond with me. In a short time I will forward all necessary blanks for the faithful discharge of the several duties required of said County Board of Health. Respectfully, J. W. REDDEN, *Secretary K. S. B. H.*

Then I had printed 1,000 copies of the State Board of Health law, and distributed them freely to the county boards, and local health officers, and physicians.

The following is a true and certified copy of the law:

STATE AND LOCAL BOARDS OF HEALTH.

CHAPTER 129, LAWS 1885.

AN ACT to create a State and local boards of health, and to regulate the practice of medicine in the State of Kansas.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. Within thirty days after this act shall take effect, the governor, by and with the advice and consent of the senate, if it be then in session, shall appoint from the

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different parts of the state nine physicians, who shall be men of good moral character and temperate habits, distinguished for their devotion to the study of medicine and allied sciences, of not less than seven years' continuous practice in their profession, and each of whom shall be a graduate of a respectable medical college; and said nine physicians, when so appointed and confirmed, shall be known as "The Kansas State Board of Health." Three of said physicians shall be appointed for one year, three for two years, and three for three years; and annually thereafter the governor shall in like manner appoint three physicians of like character and qualifications to fill the vacancies occurring in said board by reason of the expiration of the terms of service, as herein provided; and the persons so appointed shall hold their respective offices for the like term of three years, and until their successors are appointed and qualified; but in no case shall the governor appoint a majority of the physicians that shall constitute said board of health from any one school of medical practice; nor shall said board at any time be composed of persons a majority of whom shall be of the same school of medical practice. Upon the appointment of the nine physicians first provided for in this act, the secretary of state shall issue to each of them a certificate of his appointment, and within twenty days after such appointment the said nine persons shall meet in the city of Topeka, and they shall each take and subscribe the oath prescribed by law for state officers, which oath shall be filed with the secretary of state. And thereupon said board shall immediately organize by electing one of its number president. They shall also elect a secretary, and said secretary shall be the executive officer of said board, but not a member thereof. The secretary shall execute to the state of Kansas a bond in the sum of five thousand dollars, with sureties to be approved by the governor; and when approved, it shall be filed in the office of the secretary of state. Said bond shall be conditioned for the faithful performance of the duties of his office as such secretary. And he shall take and file a like oath to that prescribed for the members of said board. The board may elect one of its own number secretary, but in such case such election shall create a vacancy in the board, which shall be filled by the governor. It shall be the duty of the governor to fill all vacancies which may occur in the board; and all appointments, whether original or to fill vacancies, made during the recess of the legislature, shall be submitted by the governor to the senate at its first session after such appointment is made, for its action. But all lawful official actions of the members of the board made before confirmation or rejection, shall be valid. The executive council shall provide the state board of health a suitable office at the city of Topeka for the transaction of its business.

SEC. 2. The state board of health shall make, adopt and publish such rules and order of business as may be necessary to make this act effective, and facilitate the transaction of its business. It shall provide a seal, and all correspondence and papers emanating from it shall be under the seal of said board. It shall meet quarterly, and oftener if deemed necessary, at such place as it may designate, the first meeting to be held in the city of Topeka. The annual meeting after the first shall be held during the month of June in each and every year, at Topeka, and a majority of its members shall constitute a quorum for the transaction of business. No member of the board shall receive any compensation for services rendered; but their traveling and other necessary expenses, while employed on the business of the board, shall be allowed and paid. The secretary shall receive such compensation as may be allowed by the state board of health, and approved by the governor, and to be paid him in the same manner as the salaries of other state officers are paid, and such necessary expenses shall be allowed him as the secretary of state shall admit, on the presentation of an itemized account, having vouchers annexed, together with the certificate of the board.

SEC. 3. The secretary shall hold his office so long as he shall faithfully discharge the duties thereof; but may be removed for just cause at any regular meeting of the board, by a majority of all members of the board. He shall keep a record of all the transactions of the board; shall have the custody of all books, papers, documents, and other property belonging to the office; shall communicate with other state boards of health, and with the local boards of health within the state; shall file and keep all reports received from such boards, and all correspondence of the office appertaining to the business of the board. He shall perform all other duties prescribed in this act for the said secretary, or directed by the state board of health.

SEC. 4. The state board of health shall supervise the health interests of the people of this state. They shall make careful inquiry in respect to the cause of disease, and especially of epidemics, and investigate the sources of mortality, and the effects of localities, employments, conditions, ingesta, habits and surroundings on the health of the people. They shall advise officers of government, or other state boards, in regard to location, drainage, water supply, disposal of excreta, heating and ventilation of public buildings. They shall collect and preserve such information relating to forms of disease and death,

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as may be useful in the discharge of the duties of said board. All health officers of local boards of health in the state shall transmit to said state board of health copies of the reports and publications, and such sanitary information as may be useful to the people of the state.

SEC. 5. The state board of health shall supervise the registration of marriages, births, and deaths, and also the registration of forms of disease prevalent in the state; and the secretary of said board shall superintend the registration of the vital statistics of the state. They shall prepare the blank forms necessary for obtaining and preserving such records, and forward such of them to the health officers of local boards as may be required by physicians, assessors, local boards, and others whose duty it is to gather information in relation to the vital statistics of the state. The state board of health shall also prepare the forms and establish the rules by which permits for transporting the dead bodies of persons for burial beyond the county where the death occurs; and in all cases the said board of health shall require the coupons to be attached to such permits, to be detached and preserved by every common carrier, or the person in charge of any vessel, railroad train, or vehicle, to which dead bodies shall be delivered for transportation. Any violations of these rules shall subject the offender to a fine of ten dollars for each offense.

SEC. 6. The state board of health shall, when they think best to do so, appoint committees, or engage suitable persons to render special sanitary service, to make or supervise practical or scientific investigations and examinations, requiring expert skill, and to prepare plans and report thereon. And it is hereby made the duty of all officers and agents having the control, charge or custody of any public structure, work, ground or erection, or any plan, description, outline drawings, charts thereof or relating thereto, made, kept or controlled under any public authority, to permit and facilitate any examination and inspection ordered by said board; and the members of said board, and such other officer or person as may at any time be by said board authorized, may without fee or hindrance enter, examine and survey all grounds, erections, vehicles, structures, apartments, buildings, and places; but the legislature shall first determine the amount which shall be expended during the year for such special sanitary work, and the expenditures shall not exceed the amount thus determined and set apart for the year.

SEC. 7. The county commissioners of the several counties of this state shall act as local boards of health for their respective counties. Each local board thus created shall elect a physician, preference being given to adepts in sanitary science, who shall be *ex officio* a member of said local board and the health officer of the same. He shall hold his office during the pleasure of the board, but may be removed for just cause at any regular meeting of the same by a majority of the members voting therefor, on which motion he shall not vote. The local boards of health hereby created shall not supersede or in any way interfere with such boards established by municipal regulations in any of the counties of this state; but all local boards of health of this state, created by this act, or existing by authority of municipal law, shall be governed by the provisions of this act.

SEC. 8. The health officer of the several local boards of health throughout the state, immediately after his election, shall notify the state board of the fact and give his post-office address. He shall receive and distribute without delay, in the county for which he is appointed, all forms from the state board of health to the rightful persons, and all returns from physicians, assessors and local boards to the said state board of health, and he shall perform such other duties as this act, his local board or the state board of health may require of him. He shall receive for his services such reasonable compensation as his board may allow, to be paid out of the county treasury. And for any failure or neglect of said health officer to perform any of the duties prescribed in this act, he shall upon conviction thereof be fined ten dollars for each and every offense.

SEC. 9. It shall be the duty of every physician practicing his profession in the state of Kansas to keep a record of the deaths occurring in his practice, or that may come to his knowledge, where death occurs without medical attendance, noting the form of the disease, and as far as possible the cause which produced it, and to report the same to the local board of health where the same occurs, at the time and in the manner prescribed by the state board of health; and any failure to do so will subject said physician to a fine of ten dollars for each and every offense.

SEC. 10. It shall be the duty of assessors of personal property in the several townships and wards of cities throughout the state, annually, to collect such information as to marriages, births and deaths as may be required by the state board of health, and report the same at the time and in the manner prescribed by the said board, to the local board of health.

SEC. 11. It shall be the duty of the state board of health to begin, on or before the first Monday in January of each year, to make a report in writing to the governor of the state upon the vital statistics and the sanitary conditions and prospects of the state;

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and said report shall set forth the action of said board and its officers and agents, and the names thereof, and also the names of physicians registered for the past year, and shall suggest any further legislative action deemed proper for the better protection of life and health, and may contain any useful information which said board may desire to communicate. The annual report of said board shall contain a detailed account of the money paid out by or on account of said board, and a detailed statement of the manner of its expenditure, during the past year, but the amount so paid out shall not aggregate a sum exceeding five thousand dollars in any year. The report of the state board of health shall be published in form and manner as other state reports.

SEC. 12. All prosecutions under this act shall be conducted by the county attorney for the county in which the offense was committed, in the court having jurisdiction, and all fines imposed and collected shall be paid into the county treasury, to the credit of the school fund.

SEC. 13. All acts or parts of acts in conflict with the provisions of this act are hereby repealed.

SEC. 14. This act shall take effect and be in force from and after its publication in the official state paper.

Approved March 7, 1885.

There are now 84 organized counties in the State; the circulars and supplies of our law were received by them, and thus far I have received replies from 32 of said county clerks, and official certificates of the appointment of local health officers; and received also letters from the health officers appointed. I have also corresponded with all the State Boards of Health, (being 35 in number) including the National Board and the Provincial Board of Canada; and have received replies from 23 of them. All responded promptly, and extended all the courtesies and favors in their power, and I have now fifty volumes of reports from the various boards, some very extensive and exhaustive, besides numerous and instructive circulars, pamphlets, and blanks.

I have received some fifty letters from physicians in the various portions of the State, as well as in other States, making inquiries upon many and strange points. The Secretary herewith submits the various blank forms for the consideration and adoption of the Board, having been examined by the special committee appointed by your body at your last meeting. I also report as recommended for our State Board of Health seal, the following: A circular seal with the engraving of the completed State House in the center, and "The Kansas State Board of Health, April 10, 1885," in the circle, the same having been approved by the Special Committee on Rules and Regulations. I have not corresponded with any municipal or city boards of health, from the fact that they are operating under the provisions of their municipal laws or ordinances, and are ready no doubt to coöperate with us as soon as we have the necessary forms and blanks ready to submit to them for active work and operation.

Respectfully submitted.

J. W. REDDEN, *Secretary.*

TOPEKA, November 11, 1885.

A letter from Dr. Wright was read, stating his inability to be present on account of illness, and regretting that such was the case. The Secretary stated that he had received various communications from State Boards of Health, physicians, and individuals.

On motion of Dr. Guibor, the Secretary was allowed his own discretion to publish any communications, or extracts, as he may think proper.

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A letter from the editor of "The Sanitary News" was presented, requesting the members of the State and local boards of health to subscribe for said journal. On motion, said communication was laid on the table.

Dr. Schenck offered the following resolution, which was adopted:

Resolved, That at each annual meeting of the State Board of Health, there shall be appointed an executive committee of three members, who shall be informed by the Secretary of the Board as soon as practicable of the existence of any contagious or epidemic disease in the State, and who shall without delay take such action as may be required, and call an extra meeting of the Board when any two members thereof deem it expedient; and that they shall generally be empowered to act for the Board when it is not in session.

The following members were appointed as the Executive Committee: Drs. Johnson, Stormont, and Surber.

On motion, adjourned until 8 P. M.

8 P. M.—Meeting was called to order, pursuant to adjournment.

The chairman of the Committee on Rules and Regulations submitted their report, which was freely discussed, and with a few changes and additions was adopted, and is as follows:

RULES, REGULATIONS, RESOLUTIONS AND FORMULAS ADOPTED BY THE KANSAS STATE BOARD OF HEALTH.

(Every County and Municipal Board of Health will see that these rules are strictly enforced in their respective jurisdictions.)

FOR THE PREVENTION OF DISEASE.

RULE 1. No privy vault, cesspool or reservoir into which a privy, water closet, stable or sink is drained, except it be water-tight, shall be established or permitted within fifty feet of any well, spring or other source of water used for drinking or culinary purposes.

RULE 2. Earth privies, or earth closets, with no vault below the surface of the ground, shall be excepted in Rule 1, but sufficient dry earth or coal ashes must be used daily to absorb all the fluid part of the deposit, and the entire contents must be removed monthly.

RULE 3. All privy vaults, cesspools or reservoirs named in Rule 1, must be cleaned out at least once a year; and from the first of May to the first of November of each year, shall be thoroughly disinfected by adding to the contents of the vault, once every month, one or two pounds of copperas dissolved in a pailful of water for each member of the family.

RULE 4. No privy vault or cesspool shall open into any stream, ditch, or drain, except common sewers.

RULE 5. No night soil or contents of cesspool shall be removed unless previously deodorized by mixing with a solution of copperas or disinfected with a corrosive sublimate solution; and during removal the material shall be covered with a layer of fresh earth, unless the removal be by the "odorless excavating process."

RULE 6. All sewer drains that pass within fifty feet of any source of water used for drinking or culinary purposes shall be water-tight, and in sandy subsoil the limit shall be eighty feet.

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RULE 7. No sewer drain shall empty into any lake, pond or other source of water used for culinary purposes, nor into any standing water, pond, lake or running water within the jurisdiction of this Board.

RULE 8. No house offal or dead animal of any kind shall be thrown upon the streets or left exposed by any person; and no butcher, fishmonger, or vendor of merchandise of any kind, shall leave any refuse upon the streets or public highway, or uncovered by earth, upon any of the lots or tracts of land; and all putrid and decaying animal matter must be removed from all cellars and outbuildings on or before May 1st in each year.

RULE 9. All keepers of hotels, restaurants, and others accumulating garbage, are required to have a proper covered receptacle for swill and house offal; and to cause the contents to be regularly removed as often as twice each week, between the first day of May and the first day of November, and once each week at all other seasons.

RULE 10. Between the first day of May and the first day of November, no hogs shall be kept within the limits of any incorporated town or village within twenty-five rods of any dwelling, unless the pens have a tight and good floor, and are free from water, and regularly and freely disinfected; and during the months named, no hogs shall be kept elsewhere within the jurisdiction of this Board, within twenty-five rods of any dwelling, except in pens with dry floors, or kept free from standing water. This Board will order the removal of such animals at any time when they appear to be prejudicial to public health, safety, and comfort.

RULE 11. No diseased animal, or its flesh, and no decayed, diseased or unfit meat, fish, vegetables, or fruit; no diseased, impure or adulterated milk, or other impure, diseased or adulterated article used for food, shall be sold or offered for sale as food.

RULE 12. No dead animal shall, within the jurisdiction of this Board, be put in any river, well, spring, cistern, reservoir, stream, or pond.

SLAUGHTER HOUSES.

1. Location of slaughter houses, etc.: (*a*) A slaughter house, if thoroughly drained into a properly-constructed sewer, and no blood or offal are fed to swine on the premises, and which shall be conducted strictly according to the rules below, *may* be allowed within the limits of a town. (*b*) Small, separate or private slaughter houses must, as a rule, be outside the town or city limits, or at least in the very thinly populated portions, and not within twenty rods of any public highway. (*c*) They must be located on dry, hard land, that can be well drained. (*d*) They must be amply supplied with clean, wholesome water from springs, wells, or unpolluted streams. (*e*) They must be floored with a tight, solid floor, of hard wood, or of cement or well-joined stone. (*f*) The yards, sheds and close pens must be dry, and free from mud and filth, and their sides or walls must be thoroughly whitewashed at least twice a year.

2. The slaughter house and all its apparatus must be kept in a neat and orderly manner, free from all offensive smells. (*a*) When the slaughtering for the day is completed, the sides and floors of the slaughter room must be thoroughly washed with an abundance of clean water. No other disinfectant will be required. (*b*) No animal matter of any kind must be permitted to remain in, under or near the slaughter house, to decompose or putrefy.

3. When blood and offal, or immature animals, are fed to swine on the

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premises, such arrangements shall be made that such material shall be speedily consumed. (*a*) The blood of all the slaughtered animals must be conducted by a water-tight gutter to a water-tight trough in the hog yard. (*b*) The offal and bodies of immature animals must be thrown into a pen with a tight, dry floor, to be consumed at once by the swine; and all portions not consumed within twelve hours must be removed from the pen, and must be burned, buried, or composted with fresh earth.

4. When the blood or offal are not fed to swine on the premises, they must every day be carted off in close tanks, or be converted into fertilizers, or otherwise utilized by an apparatus, the gases arising from which must be carried under the furnaces and consumed.

5. The fat, and all materials from which fat or oil are to be extracted, must be rendered within such a time after the slaughtering of the animals that no offensive odors shall arise from them, or from the process of rendering.

CONTAGIOUS DISEASES.

1. In order that the guardians of the public health may have early warning, *it is important that every case of contagious disease be promptly reported to the local Board of Health.*

RULE 13. Whenever any householder shall know that any person within his family is taken sick with small-pox, scarlet fever, diphtheria, *or any other disease dangerous to the public health*, he shall immediately *give notice thereof to the Board of Health*, or to the *health officer*.

RULE 14. Whenever any *physician* shall know that any person whom he is called to visit is infected with small-pox, scarlet fever, diphtheria, *or any other disease dangerous to the public health*, such physician shall immediately *give notice thereof* to the Board of Health or health officer; and every physician who shall refuse or neglect to give such notice shall forfeit for each offense a sum not less than ten dollars.

RULE 15. Upon notice being given of cases of small-pox, varioloid or scarlet fever, to the Board of Health or to the health physician, by the attending physician or the head of the family thereof, or whenever any member of the Board or the health physician shall have knowledge of any cases of small-pox, varioloid or scarlet fever, within the jurisdiction of this Board, some member of the Board, or the health physician, shall cause a *yellow* cloth or card, having "small-pox" or "scarlet fever" conspicuously printed thereon, not less than eighteen inches square, to be fastened upon the front door or other conspicuous place of each building in which such sickness prevails; such cloth or card to be maintained during the existence of the disease, and until such time as the health physician is satisfied the premises have been properly cleaned, disinfected, and purified. If said yellow card or cloth is removed, without authority from the health physician, the name of the person or the head of the family occupying the premises, together with the number of the street or location, shall be published; and the person removing said cloth or card, or causing their removal without authority of the health physician, shall be fined not less than ten dollars.

RULE 16. All persons sick with small-pox, scarlet fever or diphtheria, shall be thoroughly isolated from the public, not less than thirty-five days.

RULE 17. No person recovering from an infectious disease shall be permitted to appear on the public streets or the public highway, or in any public place, until all danger from contagion, by reason of such disease, is past.

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RULE 18. No public funeral shall be held at a house where there is a case of infectious disease; nor in which a death from such has recently occurred.

RULES FOR DISINFECTION.

RULE 19. The room into which a person sick with small-pox, varioloid, scarlet fever or diphtheria is placed, must previously be cleared of all carpets, needless clothing, drapery, and all other articles likely to harbor the disease. After the death or recovery of the sick, the room, furniture and other contents not to be destroyed must be immediately thoroughly disinfected. The paper on the walls and ceilings, if any, must be removed and completely burned. The floor, woodwork and wooden furniture must be painted over with a solution of corrosive sublimate—made by dissolving one ounce of corrosive in six gallons of water; let it remain one hour, and wash off with clean water. The walls, if not papered, must be thoroughly scrubbed and whitewashed. For the sick-room, small pieces of rags should be substituted for handkerchiefs, and when once used must be immediately burned.

RULE 20. Soiled bed and body linen must be placed in vessels and saturated with the sulphate of zinc solution, then boiled for one hour before being removed from the premises.

RULE 21. The discharges from the patient must be received into vessels containing "chloride of lime," copperas, or some other known disinfectant, and if not buried at once, must be thrown into a cesspool or a water closet, after having been thoroughly disinfected, but never into a running stream or on the ground. Perfect cleanliness of nurses and attendants must be enjoined and secured.

RULE 22. Fumigation with brimstone is a good method for disinfecting the house. For this purpose the rooms to be disinfected must be vacated. Heavy clothing, blankets, bedding and other articles which cannot be treated with zinc solution, must be opened and exposed during fumigation. To disinfect an ordinary room with brimstone: Having tightly closed all the openings of the room, place in an open earthen dish three pounds of brimstone, moistened with a little alcohol, and burn, keeping the room closed, and being careful not to breathe the fumes. After fumigation, the rooms must be thoroughly aired by opening the doors and windows for several hours.

RULE 23. All articles which have been in contact with persons sick with contagious or infectious diseases, too valuable to be destroyed, should be treated as follows: (*a*) Cotton, linen, flannels, blankets, etc., should be put in boiling-hot zinc solution, introducing piece by piece; secure thorough wetting, and boil for at least one hour. (*b*) Heavy woolen clothing, silks, furs, stuffed bed-covers, beds, and other articles which cannot be treated with the zinc solution, should be hung in the room during fumigation, their surfaces thoroughly exposed, and pockets being turned inside out. Afterwards they should be hung in the open air, beaten and shaken. Pillows, beds, stuffed mattresses, upholstered furniture, etc., should be cut open, the contents spread out and thoroughly fumigated. Carpets are best fumigated on the floor, but must afterward be removed to the open air, and thoroughly beaten.

The only safety against infectious disease is to *avoid the special contagion of the disease, and for small-pox, to vaccinate,* especially when the disease is prevalent.

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FOR REGISTRATION.

RULE 24. Every physician or midwife practicing in the State of Kansas shall file with the county clerk of the county in which he or she lives, his or her name, age, residence, number of years of practice, school from which graduating, (if any,) giving name and location, date of graduation, and school of practice. And any physician or midwife failing to comply with this order on or before the first day of December, 1885, shall pay a penalty of ten dollars; and ten dollars for each month thereafter during which he or she fails to comply with this rule.

RULE 25. The health officer of each county shall make a report, on the first day of each month, of the enrollment of physicians and midwives in his county, to the Secretary of the State Board of Health; and monthly thereafter, whenever any physicians locate in the county or move therefrom.

FOR PUBLIC INSTITUTIONS.

Resolved, 1st, That the State Board of Charities and the Board of Directors of the State Prison be requested to immediately make, or cause to be made, by one or more experts in sanitary science, a thorough and *critical* examination of the various institutions under their charge, as to the source and purity of the water supply, the disposal of slops and garbage, the drainage and sewerage, cellars, cesspools, privy vaults, urinals, pig-pens, and stables; also to the heating and ventilation of halls and rooms, especially sleeping-rooms; and when anything is found or even suspected in any of these, or other things, to be detrimental to the health of the inmates, that they remedy the same; and we advise that these critical examinations be made monthly.

Resolved, 2d, That a copy of the foregoing resolution be furnished the trustees or directors of the several hospitals of this State, and that they be requested to comply with the recommendations therein; and that they be also requested to use freely, recognized disinfectants in their various wards, halls, water closets, and bath rooms.

Resolved, 3d, That the attention of the various boards of education, and school directors, and regents and trustees of institutions of higher education, be called to the recommendations in the foregoing resolutions.

Resolved, That the various local boards of health working under this Board be required to see that these resolutions are enforced in their respective jurisdictions, and report to the Secretary of the State Board of Health.

FOR VACCINATION.

Resolved, 4th, That, by the authority vested in this Board, it is hereby ordered, that on and after December 1, 1885, no pupil shall be admitted to any public school in this State without presenting satisfactory evidence oi proper and successful vaccination.

FORMULAS.

The following disinfectants are recommended: *Sunlight, fresh air, soap and water, thorough cleanliness, for general use.*

For sink-pipes and water closets, privies, ash pits, cesspools, drains, and in vessels used for discharges from kidneys and bowels, and other offensive places:

No. 1.

Sulphate of iron (copperas, green vitriol)..... 2 lbs.
Rain-water..... 1 gal.
Mix.
Write: Use freely.

When much is wanted, dissolve 60 lbs. of copperas in one barrel of water.

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No. 2.

For free and general use in privy vaults, sewers, sink-drains, refuse heaps, stables, and wherever else the odor of the disinfectant is not objectionable, the following is one of the most effective and cheapest disinfectants and germicides available for general use:

Chloride of lime (bleaching powder)	1 lb.
Water	4 gals.

Mix.

(Cost, five cents, or about fifty cents per barrel.

This is so cheap that it can be used with great freedom. A quart or more per day may be used in an offensive vault, and such quantities as may be necessary in other places. It may be used in a sprinkler in a stable, and elsewhere. In the sick-room it may be used in vessels, cuspidors, etc. Sheets and other clothing used by the patient may be immersed in a pail or tub of this solution, diluted (one gallon of solution to ten of water) for two hours, or until ready for the wash-room or laundry. This solution is non-poisonous, and does not injure clothing.

In the laboratory experiments now being made at the Johns Hopkins University, under the authority of the American Public Health Association, this solution has been found to be rapid in its action, readily destroying germs which possess the greatest tenacity of life—Bacillus subtilis and B. anthracis—as well as their spores.

For articles of clothing, bedding, etc., used about the patients:

No. 3.

Sulphate of zinc	9 oz.
Crude carbolic acid	1½ oz.
Warm rain-water	3 gals.

Mix.

This is perhaps the most valuable and reliable disinfectant in use.

No. 4.

Sulphate of zinc	5 oz.
Cloride of sodium (common salt)	2½ oz.
Rain-water	1 gal.

Mix.

Throw all articles of body linen, sheets, etc., at once into any of these solutions, and boil in clear water. In malignant cases, such articles should be boiled in one of the solutions, diluted with an equal quantity of water. They can be used freely in the sick-room. They do not stain. A towel may be used with them, and hung in the room. A sheet may be hung across the entrance hall or door, and kept constantly wet with them. Nurses and attendants will find it well to occasionally wash their hands in one of these fluids.

To wash furniture and fixtures of an infected room, and to bathe the hands of attendants:

No. 5.

Chloride of zinc	4 oz.
Rain-water	1 pint.

Write: Two tablespoonfuls of this to a pint of water.

No. 6.

Bi-chloride of mercury (corrosive sublimate)	1 oz.
Chloride of sodium (common salt)	3 oz.
Rain-water	1 gal.
Aniline (green)	1 gr.

Mix.

The color will readily show it to be *poisonous.*

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No. 7.—Thymol Water.

Made by adding one tablespoonful spirits of thymol to half a gallon of water. Spirit of thymol is composed of—

Thymol	1 oz.
Alcohol, 85 per cent	3 oz.

May be used for all the disinfectant purposes of carbolic acid; it is quite as efficient in this strength, and has an agreeable odor.

All cases of contagious or infectious disease should at once be put under the care of an intelligent, competent physician, and *immediately* reported to the Secretary of the Board of Health, within whose jurisdiction the patient is situated.

RECOMMENDATIONS.

The following extracts and principles are so appropriately and forcibly presented by the Secretary of the Wisconsin State Board of Health, and are so applicable for the direction and government of our local boards of health, that we hereby reproduce them for their guidance and instruction:

THE OBJECT OF THIS CIRCULAR, AND THE RELATION OF THE STATE BOARD OF HEALTH TO LOCAL BOARDS.

¶ The State Board of Health, in issuing this circular—which it does to acquaint new health organizations more fully with the nature and extent of their powers and of their duties, and to aid in securing the greatest resulting benefit from the law above quoted—desires that its own relations to local boards shall be distinctly understood, and to call attention to the fact that *all of the powers herein referred to rest with the local boards.* The State Board is intrusted with "a general supervision throughout the State of the interests of the health and life of citizens," and is directed to make "sanitary investigations and inquiries respecting the causes of disease—especially epidemics—the causes of mortality, and the effects of locality, employments, conditions, habits, and circumstances." The Board is also authorized to require annual reports from local boards of health and health officers, and special reports whenever necessary. It may "from time to time make general or local rules and regulations for the preservation and improvement of the public health, not inconsistent with law, or those prescribed by local authorities pursuant to law; but its powers are limited by these restrictions. The execution and enforcement of the health laws of the State rest, therefore, with the local boards. The State Board will, however, always be glad to coöperate with local boards, and will aid them to the full extent of its authority by advice in any emergency; by personal visits of its officers or a committee whenever such visits may be necessary; by the free distribution of circulars on the management of contagious diseases, and by answering as fully as possible all communications at any time. To the end that such coöperation may be of the greatest benefit, the fullest and freest communication is desired with all local boards.

Coming to a more definite enumeration of the

Powers and Duties of Local Health Boards.

It may be said at the outset that these powers, when exercised solely and impartially in the interests of the public health, and not for any private purpose or ends, are as ample as legislative authority can confer; in effect they are practically unlimited. The great importance of the object for which health boards are constituted, entitles them to such power, and entitles them also to the most liberal construction on the part of the courts, of all the laws under which they work. In general, therefore, *whatever a local board may find it needful to do, whether for the prevention of the disease, or for the enforcement of its own rules made in the interests of the public health, and properly published, or for the enforcement of statutory provisions for the same end, such a board has the power to do.*

What Constitutes a Nuisance.

It is essential, however, that before using these extensive powers in dealing with nuisances, health boards and health officers should thoroughly comprehend what is implied in the term; and the several principles that should govern their action in such cases are well laid down by the Hon. Leroy Parker, of the State Board of Health of Michigan, in the seventh annual report of that Board, from which we quote as follows:

"An actionable nuisance is said to be anything wrongfully done or permitted, which injures or annoys another in the enjoyment of his legal rights. Every person has the legal right to the fullest en

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joyment of his life and health. Anything, then, which injures or annoys the public in the enjoyment of life or health is a nuisance, which it is the duty of the Boards of Health, as the guardians of the public health, to abate. Any classification of nuisances will be necessarily imperfect, yet for the purposes of this subject, it may be said that the public health nuisances are of two kinds:

"1. Those that are such from their very nature, which cannot exist in the vicinity of habitations without causing offense to the senses, and injury to the health; such, for instance, as exposed and decaying carcasses of dead animals, or accumulation of offal or fecal matter in exposed places.

"2. Those which become nuisances by reason of misuse or negligent care exercised, of an otherwise harmless and perfectly lawful object, business or occupation; as, for example, slaughter houses, rendering establishments, mill ponds, or burying grounds.

"The methods of procedure to be adopted for the removal of any nuisance will vary according as the nuisance to be abated comes within one or the other of the classifications. If the danger to the public health is imminent, and safety requires the immediate suppression of the nuisance, the board of health, or any individual affected thereby, would be protected if they should proceed at once to suppress it, for the safety of the people is the highest law. If any unhealthy nuisance is found in a public place, it would be the duty of the board to see to its immediate removal. On the other hand, a mill pond, a slaughter house, or a burial ground, are not necessarily offensive or unhealthy, and their use is perfectly legal. It is only their misuse that makes them a nuisance. A mill pond may be maintained in the midst of a thickly-populated community without being in the slightest degree detrimental to the public health. A slaughter house may be conducted with such perfect cleanliness as to be no more offensive in a sanitary sense than a planing mill. Whether a business or a thing, not in itself a nuisance, is so managed or suffered to exist as to be a nuisance, is a fact which must be determined by the courts upon evidence. A board of health cannot decide that to be a nuisance which is not so in itself; only upon the judgment of a court of competent jurisdiction can a board of health legally ascertain whether a business is a nuisance, so as to authorize them to abate it. Of course any collection of offal or filth about a slaughter house may be removed by a board of health, under the authority conferred on it by the statutes, but the suppression of the business itself can only follow a judicial determination that it is so conducted as to be injurious to the public health.

"It would be well for the members of every board of health to acquaint themselves as fully as possible with all the facts relating to any existing nuisance, or thing which may become a nuisance, within their jurisdiction, and apply to these facts the existing law, and thus ascertain in what way they should proceed to prevent or remove the same. Misdirected zeal is sometimes as harmful as a lack of zeal. Therefore in cases involving doubt, it is always advisable to take legal counsel before proceeding to extreme measures."

Finally, while in a state like our own, the needs of communities vary, from those of the pioneer settlement, in which there is little need or opportunity for the exercise of the powers herein referred to, to the crowded centers of life and activity, where there is constant demand for sanitary oversight and vigilance, there can, whether the needs of communities be few or many, be no circumstances in which it would not be wise for boards of health to seek the coöperation of the people. Laws for the preservation of the public health, with penalties for offenses against it, are a necessity, and the enforcement of such laws a duty which health boards may not neglect; but in all public health administration it should be remembered that true and lasting sanitary progress can be made only by the upbuilding of public sentiment in its favor.

Health officers will please see that a copy of this pamphlet is placed in every family where infectious or contagious diseases are prevailing.

By order of the State Board of Health. J. W. REDDEN, M. D.,
Secretary.

Copies of this pamphlet can be obtained by applying to the Secretary of the State Board of Health, or to the local health officer of any county in the State.

TOPEKA, KANSAS, July 1, 1885.

On motion, the Secretary was instructed to have 2,000 copies of the rules, regulations and resolutions published in pamphlet form; and such formulas as he might select, with any additions and recommendations that he thought advisable and desirable; and forward copies of the same to each local health board, and municipal health boards, and any other health officers or public institutions in the State.

Dr. Roberts, of the special committee on blanks, presented the report of the committee, which was adopted, and is as follows:

Reports.—Form for marriages; form for births; form for deaths; form for deaths of still-born children; A, return of county health officer, of marriages, to the Secretary of the State Board of Health; B, return of the county health officer, of births, to the Secretary of the State Board of Health; C, return of county health officer, of deaths, to the Secretary of the State

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Board of Health; D, return of county health officer, of still-born children, to the Secretary of the State Board of Health; E, form for transportation of dead bodies; F, form for registration of physicians and accoucheurs. Also, form for vaccination certificates, and form for registration of physicians and accoucheurs.

The blank forms designated by the letters A, B, C, D, and E, have not yet been issued; but will be early in the year 1886. The first four, above referred to, were as follows:

KANSAS STATE BOARD OF HEALTH.

RETURN OF A MARRIAGE.

STATE OF KANSAS, ——— COUNTY.

1. Full name of groom, ———. 2. Place of residence, ———. 3. Occupation, ———. 4. Age, next birthday, ——— years; color, ———; race, ———. 5. Place of birth, ———. 6. Father's name, ———. 7. Mother's maiden name, ———. 8. Number of groom's marriage,* ———. 9. Full name of bride; maiden name, if a widow, ———. 10. Place of residence, ———. 11. Age, next birthday, ——— years; color, ———; race, ———. 12. Place of birth, ———. 13. Father's name, ———. 14. Mother's maiden name, ———. 15. Number of bride's marriage,* ———. 16. Married at ———, in the county of ———, and State of Kansas, the ——— day of ———, 18—.

We hereby certify that the above is correct, to the best of our knowledge and belief.

——— ———, *Groom.*

——— ———, *Bride.*

I hereby certify that the above is a correct return of a marriage solemnized by me.

——— ———

Dated at ———, this ——— day of ———, 18—.

* State whether first, second, third, fourth, etc., marriage.

KANSAS STATE BOARD OF HEALTH.

RETURN OF A BIRTH.

STATE OF KANSAS, ——— COUNTY.

1. Full name of child, (if any,) * ———. 2. Sex, ———; number of child of this mother, ———. 3. Race or color, (if not the white race,) ———. 4. Date and place of birth,† ———. 5. Father's nationality, ———: place of birth, ———; age, ——— years. Mother's nationality, ———; place of birth, ———; age, ——— years. 6. Full name of mother, ———; maiden name, ———; mother's residence, ———. 7. Full name of father, ———. 8. Father's occupation, ———. 9. Name of medical or other attendant, and address, ———.

Returned by ——— ———, *M. D.*

Dated at ———, 18—. *Residence,* ———.

NOTE.—The physician, accoucheur, or person in attendance, should immediately return this certificate, accurately filled out, to the county health officer. Penalty, $10, if not so certified and returned within thirty days.

* The given name of child should be certified, if possible, when this certificate is made, and should in any case be certified and registered within one year.

† City, number, street, and ward; same in towns that have them; or township.

KANSAS STATE BOARD OF HEALTH.

RETURN OF A STILL-BIRTH.

STATE OF KANSAS, ——— COUNTY.

1. Name of mother, ———. 2. Name of father, ———. 3. Place of birth, ———. 4. Residence of mother, ———. 5. Period of utero-gestation, ———; date of birth,

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———, 18—. 6. Sex, ———; color, ———; nativity of mother, ———; nativity of father, ———. 7. Cause of dead-birth, (if known,) ———. 8. Signature of medical attendant, ———; residence of medical attendant, ———. 9. Name of other person making this return, ———; residence of other person making this return, ———. 10. Date, ———, 18—. 11. Undertaker, ———. 12. Place of burial, ———.

NOTE.—The death of an infant that has breathed must not be returned as a *still-birth.* Such deaths should be certified in the usual manner, after returning the birth record.

KANSAS STATE BOARD OF HEALTH.

PHYSICIAN'S CERTIFICATE OF DEATH.

STATE OF KANSAS, ——— COUNTY.

1. Name, ———; sex, ———; color, ———. 2. Age, —— years, —— months, —— days; occupation, ———. 3. Date of death, ———, 18—; hour, ———, — M. *Single, married, widower, widow. 4. Nationality, and place where born, ———. 5. How long resident in this State, ——— years, ——— months. 6. Place of death,† ———. 7. Cause of death:‡ Complications, ———; duration of complication, ———. 8. Duration of disease, ———. 9. Place and date of burial, ———. 10. Name and place of undertaker, ———.

——— ———, *M. D.*

Dated at ———, 18—. *Residence,* ———.

NOTE.—The physician who attended any person in a last illness should immediately return this certificate, accurately filled out, to the county health officer. Penalty, $10, if not returned within thirty days.

*Erase such of these as are not required.

†City, number, street, and ward; same in towns that have them; or township.

‡State primary and immediate cause of death, and examine the list of diseases in printed pamphlet of instructions, and law pertaining to coroners' inquests.

KANSAS STATE BOARD OF HEALTH.

SCHOLAR'S CERTIFICATE OF VACCINATION.

1. Scholar's name, ———. 2. Age, —— years, —— months. 3. Residence, ——. 4. Date of vaccination, ———, 18—. 5. Virus: Bovine, humanized. 6. Date of examination, ———, 18—. 7. Result, ———. 8. Previously vaccinated, in the year 18—. 9. Result, ———.

I hereby certify that the foregoing statements are true, of my own knowledge, and that the child named has been vaccinated, with the result above set forth.

——— ———, *M. D.*

The certifying physician should read pamphlet No. 30, for full information concerning this certificate.

The question of the salary of the Secretary was postponed until the regular quarterly meeting in September.

Dr. Stormont was appointed a special committee to prepare a paper on "Cholera," to be presented at the next meeting.

Dr. Guibor was appointed a special committee to prepare a paper on "Filters, and Purification of Cistern and Drinking Water," to be also presented at the meeting in September.

On motion, it was ordered that the regular meetings be held on the second Thursday of March, June, September, and December, at 4 o'clock P. M., at the office of the Secretary; and that the President or any two members

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of the Board may call a special meeting of the Board, at such other times as they may think it necessary to do so.

On motion, adjourned. J. W. REDDEN, *Secretary.*

TOPEKA, KAS., September 10, 1885.

No quorum being present, the State Board of Health adjourned until 8 P. M.

8 P. M.—The roll was called, and the following members were present: Doctors Stormont, Welch, Jenny, and Surber. No quorum being present, the State Board of Health adjourned until 9 A. M., September 11th.

J. W. REDDEN, *Secretary.*

TOPEKA, KAS., September 11, 1885.

Kansas State Board of Health convened at the office of the Secretary, No. 231 Kansas avenue, Topeka.

Upon calling of the roll, the following members were present: Doctors Johnson, Surber, Stormont, Welch, and Jenny.

Letters were received from Doctors Guibor, Roberts, Wright, and Schenck, giving reasons why they were detained, and expressing regret at their inability of attending the present session of the State Board.

The minutes of the last quarterly meeting were read and approved. The report of the Secretary was then read and approved, and was as follows:

Mr. President, and Gentlemen: Since the last quarterly session of this Board, the duties, labors and time absolutely required of the Secretary have even surpassed the most fertile imagination of the most ardent devotee in sanitary science. Not only has my time been entirely required, but often demanding the assistance of clerical work, in order to prevent the accumulation of important business that has demanded prompt attention. At this stage of the organization of the Board, I can faintly outline the vastness of the work and knowledge that the near future will require of this Board, and the untold benefit, comforts and security conferred upon the masses of the people of this wonderful commonwealth, emanating from the efficient measures, matured and enforced under the powers and authority conferred upon this body, as the guardians of the public health.

In my last report, I stated that thirty-two of the eighty-four organized counties had appointed county health officers under our law, and were making progress in sanitary work. Since then I have to report thirty-three other counties organized, and which report a willingness to adopt and enforce any and all measures that the judgment and decision of this Board deem necessary for the welfare and comfort of the people.

There are twenty counties which have thus far utterly failed either to organize or make any report to this office. A list of said counties is herewith submitted, viz.: Atchison, Brown, Comanche, Cherokee, Cloud, Decatur, Dickinson, Doniphan, Edwards, Harper, Harvey, Leavenworth, Lincoln,

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Montgomery, Pratt, Rawlins, Republic, Sheridan, Smith, Wabaunsee—a majority of which, you will readily see, are either frontier or border counties, and not thickly settled. But the indifference and apathy of the old, thickly populated, and prosperous counties, is both inexcusable and unaccountable from a sanitary or rational standpoint. I regret that the list is headed with Atchison, but the following will show that our worthy President has made persistent and commendable efforts to have her fall into line, and march in the step of sanitary reform:

STATE BOARD OF HEALTH—SOME INFORMATION FROM THAT BODY.

TOPEKA, KAS., August 29, 1885.

The law enacted at the last session of the Legislature of Kansas, creating a State Board of Health, and regulating the practice of medicine, makes it the duty of every physician and midwife in the State to register. The blanks for this registration are now in the hands of C. H. Krebs, clerk of Atchison county, and have been signed by most of the physicians of Atchison. The physicians and midwives of the city and county who have not registered, will please call and do so at once, as the blanks must be returned to the Secretary of the State Board of Health, Topeka, Kansas, by the 30th of September, 1885.

The law also makes the county commissioners of each county a local board of health for their respective counties. The commissioners of Atchison county have failed to appoint a physician as an expert to assist them in enforcing the rules and regulations of the State Board, as provided by law. Therefore all of our citizens who have complaint to make of filthy or unsanitary condition that may exist in any part of the city or county will report the same to the county commissioners; and should they refuse to enforce the law promptly, they should be reported to G. H. T. Johnson, M. D., President of the State Board of Health, 317 Commercial street, Atchison, Kansas.

ATCHISON, KAS., Sept. 2, 1885.

J. W. Redden, Topeka, Kansas—DEAR DOCTOR: I should have written before, but have been waiting to report progress in the work of the Board at Atchison. I had visited the County Commissioners before receiving your suggestion to do so, and urged them to comply with the laws, by appointing a physician as expert, &c., but they refused to do so, saying it would cost too much. I have also had Dr. Lamphier see them, and yet they will not act. I have at last resorted to the press, as you will see by a marked paper sent you. I may have gone beyond my authority in doing so, but I hope good will result from this action. Think the County Board may think it necessary, for their own comfort, to comply with the law rather than personally to be annoyed by complaints. The registration is progressing; only two physicians, so far, have refused to sign the blanks. Perhaps a letter from you at the right time, under the seal of the society, will bring them to time. As soon as I can get a list of the names of the clergymen, will send you one.

The Street Commissioner is the only health officer the city of Atchison has at present.

Yours truly, G. H. T. JOHNSON.

Also, the following letter from Leavenworth will show the pressure and efforts upon the County Commissioners of that county, but without success:

LEAVENWORTH, KAS., Aug. 31, 1885.

J. W. Redden, M. D., Topeka, Kansas—DEAR SIR: Your circulars to hand, and will hand them to members of the Board. I bring the resolution to appoint a physician as the law requires before the Board every meeting, but it is always laid over.

Yours respectfully, J. W. NIEHAUS, *County Clerk.*

Also, extract from a letter from J. W. Lane:

LEAVENWORTH, KANSAS, Sept. 6, 1885.

DEAR DOCTOR: Your letter received. I have spoken to the County Commissioners, and urged the appointment of a county health officer. I also wrote another physician of Leavenworth, requesting his personal efforts with the County Commissioners, to nerve them to action in this matter, but have received no reply from him.

I sent the pamphlet on rules, regulations and resolutions, and also registration blanks, with all necessary instructions, to the County Clerk of Harvey county, urging the County Commissioners to comply with the law, but thus far no response from them.

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During the past three months I have received and answered three hundred and twenty-seven communications as follows: Secretary and members State Board of Health, twenty-five; county health officers, one hundred and eighty-five; physicians, fifty-three; special letters of instruction to county health officers, sixty-four; total, three hundred and twenty-seven.

Of the special letters of instructions to the county health officers accompanying the pamphlets on rules, regulations and resolutions, the following is a copy:

OFFICE OF SECRETARY STATE BOARD OF HEALTH,
TOPEKA, KANSAS, July 7, 1885.

DEAR DOCTOR: I send you by to-day's mail ten copies of our rules, regulations, etc., for your instruction, assistance and guidance. I hope that your county board will adopt them, and that you will see that they are promptly and effectually enforced, so far as the public health and comfort require. Also, find inclosed a copy of our State law. I have had the rules, regulations, etc., published in our daily papers here, and I hope you may interest the editors of all your county papers sufficiently to have them published in full, or at least the main portion of them, as instructive and valuable family reading, and call the attention of each householder to the importance of cutting out and preserving them for future reference, as each family should have a personal interest in their enforcement. Send me copies of the papers publishing them.

I send you two copies of the pamphlet, arranged to hang up in your court house and post office for public information. Hand a copy of the pamphlet to each member of your county board. Please acknowledge receipt of pamphlet.

I will be pleased at any time to render you any information or assistance desired.

Yours truly, J. W. REDDEN, M. D., *Secretary K. S. B. Health.*

Many of the letters from the county health officers were asking for specific instruction as to their powers under our law to abate any thing or material supposed to be a nuisance, or tending to impair the health of the neighbors. My replies have been in substance to study carefully our law and the pamphlet on rules, regulations and resolutions, and consult their county attorney; then take prompt measures to have the owners or the county authorities to abate or remedy or remove same; that promptness, gentleness and firmness would generally accomplish the desired end, without any useless or uncertain litigation.

The strongest complaints have come from Miami, Bourbon, Coffey and Saline counties, in the shape of stagnant ponds, hog pens, livery stables, slaughter houses, filthy alleys and privies; and in every instance, so far as I have been informed, the orders of the county health officers have been enforced without any litigation.

Since the adjournment of the Board, I prepared the pamphlet on rules, regulations and resolutions, and after consultation with two members of the board, I had two thousand of said pamphlets printed instead of one thousand, and time has shown the wisdom of the course. Had I sent the entire number of said pamphlets that have been requested, it would have exhausted an edition of ten thousand instead of two thousand. But you have noticed in my letter, I advised each county health officer to have the pamphlet entire, or as much of it as possible, published in his own county papers, believing such a plan would reach the families more directly and have a more direct influence. And I am daily convinced that such a course has had the desired effect. I have left some five hundred of said pamplets to supply such absolute demands, besides the requirement of twenty counties yet to be organized, until such time as this Board may think advisable to issue a revised and more complete edition of the same. The county health officers (with two or three exceptions) have taken hold of the work with commendable spirit and accomplished grand results.

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Herewith I present a brief extract from three letters as fair samples, the first two confirming the rule, and the last the exception. Dr. Wiley, of Fredonia, Wilson county, writes:

"The county board fully indorses the pamphlet on rules, regulations and resolutions, both officially and personally, and we propose to see them enforced vigilantly. Please give explicit instructions in regard to any service that may be required of me, and I will execute cheerfully."

Dr. Burson, of Garnett, Anderson county, says:

"I have been upsetting privies, buildings, hog pens, and draining and upsetting cellars, until you can't rest; have also made a raid on two slaughter houses and almost completely disemboweled them; have also stirred our 'city dads' up to a sense of their duty, and they have since been doing some good work in the way of improving dirty alleys and mud holes."

While Dr. Wilcox, of Wakeeney, Trego county, writes thus:

"The blanks are received. Our county commissioners have decided that we do not need any sanitary laws or rules for this county, and also that it would be a public injury to adopt the rules sent us for adoption. Our people are all poor, and in most cases are attended by unprofessional accoucheurs."

But as an entirety I congratulate the Board upon the fact that the county commissioners have selected such a noble corps of health officers, who readily know their duties, and knowing dare maintain. Even Dr. Wilcox, of Trego, would be no exception had he received the hearty support and indorsement of the county commissioners.

I also prepared six hundred registration blanks, with the following headings, and sent four to every county health officer in the State:

REGISTER OF PHYSICIANS AND ACCOUCHEURS IN THE STATE OF KANSAS.—When Registered; Name (the *signature* of the party is required); School of Practice; Residence and P. O. Address (give street and No. if in city or village); County; Age; Nativity; No. of Years in Practice; No. of Years in Practice in Kansas; When said Diploma was conferred; Name of College; Place of Graduation.

Accompanying these registration blanks I sent the following circular:

OFFICE OF SECRETARY STATE BOARD OF HEALTH,
TOPEKA, KANSAS, August 10, 1885.

DEAR DOCTOR: I send you by mail to-day, four copies of our registration blanks. You will please hand two copies to the county clerk. He should keep the original one on file in his office, and as soon as the registration is completed hand you the other, being a true copy, which you will forward to me promptly. The other two copies are for your own use, one to be a correct copy, and retained in your office, and the extra one to be used in case of any emergency. Should you need any more copies, write me and I will forward them to you.

I hope you will personally see that the registration is completed on or before October 1st, and that you will send me the report as soon thereafter as possible. Write me at your earliest convenience and let me know the number of physicians and accouchers practicing in your county, and also the *number* of ministers, justices of the peace, judges, and all other persons who have authority to solemnize marriages, so that I may know how many blank forms for marriages, births and deaths to forward to you for distribution. Will be pleased to learn of the progress you are making in sanitary matters.

Your prompt attention and early reply will oblige.

Yours truly, J. W. REDDEN, M. D., *Secretary K. S. B. H.*

Each blank provides for the registration of forty-two physicians and midwives, having an ample supply on hand for any future demand or emergency. At first the registration rules seemed to create a little opposition and kicking upon the part of a few would-be stars of the profession. But the little opposition is gradually waning, and I think October 1st will witness a remarkable work, and unexpected accomplishment in this line. Our own county is likely a fair sample. Starting out with the resident member of

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this body, then the secretary and county health officer, the rank and file, like noble soldiers, fell regularly into line; and to-day the county clerk called on me and said he thought at least half of the physicians in the county had registered, and that all would comply with the law by October 1st; that the physicians in the county were writing him that they would be in and register during this month. When the full returns are all in there will be much to amuse as well as to instruct this Board. I know of a county not far distant from the prosperous capital of this wonderful Commonwealth, where one midwife registered that had to make her X (or mark); where several so-called physicians could scarcely write their names legibly, and are graduates of no institution of learning or physic.

Two other instances will illustrate that this branch is meeting with universal success:

REGISTRATION OF PHYSICIANS AND MIDWIVES.—All practicing physicians and accoucheurs, or midwives, in Pottawatomie county, must, on or before the first day of October, 1885, call in person, at the office of the county clerk, in Westmoreland, and register as required by law, else be deprived of the right to practice within said county.

By order of J. W. Redden, M. D., Secretary of Kansas State Board of Health.

C. A. SKENE, M.D., *County Health Officer.*

Dr. Emerson, of Winfield, Cowley county, writes:

"DEAR DOCTOR: I think nearly all physicians will have registered in this county before the first of October. There are about ninety physicians and accoucheurs practicing in Cowley county."

Sedgwick county reports one hundred physicians, and Shawnee about one hundred and fifty, and every other county in about the same ratio—thus showing that the approximate estimate of the practicing physicians in this State will probably be largely increased by the accurate and complete reports. As twenty-four of the eighty-four organized counties had failed to report the appointment of a county health officer up to the 20th of August, I had prepared and sent to the County Clerks of said delinquent counties the following circular, which explains itself:

OFFICE OF SECRETARY STATE BOARD OF HEALTH,
TOPEKA, KANSAS, August 28, 1885.

Board of County Commissioners of ——— *County*—DEAR SIRS: On May 15th, I issued from this office a circular letter, addressed to the chairman of the board of county commissioners, requesting that you appoint a local health officer, who, in conjunction with yourselves, would constitute the county health board. Said health officer should be a physician of experience and standing, and, if possible, an expert in sanitary science. Of the eighty-four organized counties in this State, sixty-two have reported organizations of county health boards, and are doing a good work in the interest of public health.

It is very important that you should appoint a local health officer, at your *first session* after receiving this notice, and request said health officer to communicate with me at once, and send the county clerk's certificate of his appointment, and I will send all necessary instructions, blanks, etc., that will enable him to look after the interests of the public health and the prevention of epidemic disease. I trust that this matter will meet with your hearty approval and prompt action; for we desire to have *every county* in Kansas fully organized in September as a local health board, ready for active and progressive work, so that every county health officer may place his respective county in the best possible sanitary condition. Then as a State Board of Health we may be able, with confident assurance, to say to that panic-producing plague, Asiatic cholera, as it threatens our borders early in the coming year, "Stay thy hand—thou cannot enter here!" and thus save our prosperous people from consternation, dismay, prostration, and *death.*

The county clerk will see that each member of the board of county commissioners receives a copy of this letter, and the inclosed law, as early as possible.

Yours truly, J. W. REDDEN, M.D.,
Secretary and Executive Officer, Kansas State Board of Health.

In response to said letter, four of those counties reported organizations ready for instructions and work.

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Of the remaining twenty (the list of which I have given), most of them, if not all, I think, will report organizations during the present and next month. Should they fail to do so, what more effective course could be pursued in order to accomplish the end so fondly desired? The printing of the blanks for vital statistics has been delayed in consequence of the State Printer having to order an additional supply of paper and await its tedious arrival. They are now, however, being delivered in good style, and ready to be distributed to the various health county officers, accompanied by the following circular letter of instructions:

OFFICE OF SECRETARY STATE BOARD OF HEALTH,
TOPEKA, KANSAS, September 10, 1885.

DEAR DOCTOR: I send you by express to-day, our blanks for returns of deaths, births, still-births and marriages, also vaccination certificates, for you to distribute—the first three and the vaccination certificates to the physicians and midwives practicing in your county, and the marriage certificates to the ministers, judges and justices of the peace in your county, who are authorized to perform the marriage ceremony. Give each personal notice, and distribute one pamphlet of each to those authorized to receive them, and as many vaccination certificates as each physician may need.

The blank form for the reports from the county health officer, and the pamphlet of instructions to physicians, for the accurate compilation and report of deaths, will be sent you in a few days. I do not prepay the express charges, for the simple fact that I have no funds for that purpose, and will not have until the Legislature meets, and it is easier for each county to pay, than for one person to pay the entire amount. Write me and acknowledge receipt of the supplies.

Let me know whether or not any city in your county has a city board of health, and if so, the name of the city and the full name of the chairman of said city board of health.

Write me whether you have had any epidemics or endemics in your county during the present year, and if so, the nature, extent and duration of the same. Write a full history of said epidemics or endemics, so far as you can, and send to me so that I can have them before December, that I may embody it in my report and present to the next meeting of the State Board of Health.

I also send you a supply of circular letters. Send one to every physician in your county.

Your personal supervision and prompt attention will oblige.

Yours truly,

J. W. REDDEN, M.D.,
Secretary Kansas State Board of Health.

I have also prepared the following circular letter on registration and vaccination, a copy of which is to be sent to every physician and midwife in the State:

OFFICE OF SECRETARY STATE BOARD OF HEALTH,
TOPEKA, KANSAS, September 7th, 1885.

DEAR DOCTOR—I wish to call your special attention to Rule No. 24, adopted by the Kansas State Board of Health. It is as follows:

"REGISTRATION.—Every physician or midwife, practicing in the State of Kansas, shall file with the County Clerk of the county in which he or she lives, his or her name, age, residence, number of years of practice, school from which graduating (if any), giving name and location, date of graduation, and school of practice. And any physician or midwife failing to comply with this order on or before the first day of October, 1885, shall pay a penalty of ten dollars, and ten dollars for each month thereafter during which he or she fails to comply with this rule."

It is very important that this rule should be strictly and universally complied with, in order that the State sanitary work may be advanced, and the general public benefitted. And we think it is only necessary to call the attention of each individual physician and midwife to these facts, when they will nobly and promptly respond to the call.

We desire also to impress upon every physician in the State the absolute importance of a general and rigid enforcement of the following resolution of the State Board of Health:

"VACCINATION.—*Resolved*, That, by the authority vested in this Board, it is hereby ordered: That on and after October 1, 1885, no pupil shall be admitted to any public school in this State without presenting satisfactory evidence of proper and successful vaccination."

Every county health officer in the State has a full supply of blank vaccination certificates to furnish every physician, who should at once apply for them. Unity and promptness of action in these important matters will promote public health and protection.

Respectfully yours,

J. W. REDDEN, M. D.,
Sec'y and Executive Officer, Kansas State Board of Health.

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The subject of vaccination is one of the utmost importance from a sanitary point of view, and should be rigidly, promptly and universally enforced. In investigating this subject, I had occasion to examine the last biennial report of the State Superintendent of Public Instruction, to ascertain the actual number of persons of school age from five to twenty years in this State, and was somewhat surprised to find it was four hundred and eleven thousand two hundred and fifty, up to July 30th, 1884; and it is fair to presume that the regular ratio of increase would bring that number up to, in round numbers, five hundred thousand. So that it will require of blank certificates of vaccination for the use of the entire State the number of five hundred thousand. (See page 26 for form of said vaccination certificates.)

Before passing from this subject, I call your special attention to the following extract from a circular of the Illinois State Board of Health, concerning the vaccination of school children:

"When the school-vaccination order went into effect, January 1st, 1882, nearly sixty-nine per cent., or over four hundred and ninety thousand of the enrolled scholars in Illinois, were either entirely unprotected against small-pox by vaccination, or had again become susceptible through failure to revaccinate at the proper time. Within sixty days, that is, the first of March, 1882, there was less than six per cent. of unprotected and susceptible remaining among those in attendance, and the frequency of small-pox and varioloid among public-school children had been lessened more than one-third, while the mortality rate of cases was reduced from sixteen and five-tenths per cent. to three and three-tenths per cent. On the one hand, the number of cases was reduced, owing to the general vaccinal protection, and on the other hand, the cases which did occur were milder and less fatal because of the modifying effect of vaccination.

"The small-pox reports made to the Board from all parts of the State during the four years, 1880–83, show that the deaths among unvaccinated school children were at the rate of forty-eight in every one hundred attacked, while the deaths among vaccinated school children were only in the proportion of nine-tenths of one per cent. of those attacked."

It is difficult to conceive of a stronger argument than these figures present for the necessity of a thorough enforcement of proper and successful vaccination as a prerequisite to admission to the public school room.

Permit me here to call your attention to a few brief but startling facts, from the last report of the National Board of Health, on the prevalence and mortality of small-pox, cholera, diphtheria, typhoid fever, and typhus fever. In Montreal, Canada, for the week ending September 2d, 1885, two hundred and thirty cases of small-pox were reported, and ninety-six deaths. From August 1st to September 2d inclusive, eight hundred and twenty-four cases were reported and two hundred and twenty-seven deaths. The following abstract is taken from the report of the Japanese Central Sanitary Bureau concerning the prevalence and mortality from contagious or infectious diseases in that country, during the first six months of the current year:

Typhoid fever, seven thousand nine hundred and eighty-four; deaths, two thousand and seventy-eight; diphtheria, one thousand four hundred and forty-two; deaths, eight hundred and fifty-six; typhus, four hundred and forty-four; deaths, seventy-eight; small pox, four thousand four hundred and seventy-two; deaths, one thousand one hundred and seventy-one; cholera, sixteen; deaths, ten.

In the report furnished to this office through the American Ministry the places in which these diseases prevail are not given. We can therefore at this time only state the facts as above given. Referring to that portion of the report relating to small-pox, we find that in January there were six hundred and twenty-seven cases, and one hundred and twenty-seven deaths; February, 861 cases, and 223 deaths; March, 485 cases, and 225 deaths;

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April, 737 cases, and 224 deaths; May, 777 cases, and 190 deaths; June, 761 cases, and 214 deaths.

It is probable that small-pox prevails in the seaports of the empire, and in the absence of any indications of abatement of the disease, the adoption of careful precautionary measures on our western coast is clearly indicated.

Progress of the cholera in Spain from July 30th to August 5th: Previously reported—cases, 22,253; deaths, 8,650; cases, 81,355; deaths, 34,901; total from March 4th to August 5th, cases, 103,608; deaths, 43,551.

The subject of vital statistics, or returns of births, still-births, deaths and marriages, their condensed returns, tabulation and compilation, is one that has caused all the State Boards of Health no little anxiety, thought, labor, and vexation of spirit; and but few have accomplished as satisfactory results as they had hoped. The Illinois State Board has the most complete system, and has secured gratifying results. Although that Board has been working upon that subject for the past ten years, it has by no means attained perfection. Appreciating these facts, I have been exceedingly anxious that we should start from the proper basis, and, profiting by the past experience of other boards, try and make our beginning approach as near as possible the standard they have already attained; that the results accomplished may meet the hearty approval of every member of this Board and the generous indorsement of every one interested in this most important department of sanitary science.

At our last session, the question as to whether the medical-practice act passed in 1870 was still in force or repealed, was presented to the Attorney General for his written opinion, which he promised to give at an early day. Pressure of business caused him to delay the matter, until I thought best to submit the question to him again officially, in connection with other questions that I was convinced should be construed by him for the guidance of the Secretary. Herewith is submitted the correspondence and his reply:

TOPEKA, KANSAS, August 5, 1885.

Attorney General Bradford—DEAR SIR: You will please give me your written opinion upon the following points of law at your earliest convenience, and your prompt attention will oblige. Yours truly,

J. W. REDDEN, M. D.,
Kansas State Board of Health.

Has the law entitled "Who shall not practice medicine," (Laws 1870, ch. 68, sec. 1—took effect May 12, 1870, and printed on page 369; [2045] ¶ 282, § 1, [2046] ¶ 282, § 2, Compiled Laws of Kansas,) — ever been repealed, or are the law and the penalty still in full force and effect?

2. Have we any other law on our statutes relating to nuisances and their remedy for promotion of public health, other than article 11, on nuisances, page 374 Compiled Laws of Kansas? And if not, can any person be prosecuted for failure to abate or remove any accumulation or material, which in the judgment of county local boards of health are nuisances, and will materially injure the public health?

3. Can any person be punished for violations of the rules, regulations and resolutions of the State or local boards of health, unless such violations are made punishable either by the laws of the State or by the ordinance of the city?

The following is the law referred to: Compiled Laws of Kansas, 1881, (7045,) sections 282–5 of section 1; Session Laws 1870, ch. 68 — took effect May 12, 1870. Section 1, "Who shall practice medicine;" section 2, penalty for violating preceding section.

"SECTION 1. That it shall be unlawful for any person within the limits of the State of Kansas, who has not attended two full courses of instruction and graduated in some respectable school of medicine, either of the United States or of some foreign country, or who cannot produce a certificate of qualification from some State or county medical society, and is not a person of good moral character, to practice medicine in any of its departments for reward or compensation, for any sick person within the State of Kansas: *Provided*, That in all cases, when any person has been continuously engaged in the practice of medicine for a period of ten years or more, he shall be considered to have complied with the provisions of this act, and that where persons have been in continuous practice of medicine for five years or more, shall be allowed two years in which to comply with such provisions."

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(2046), par. 282 of sec. 2: "Any person living in the State of Kansas, or any person coming into said State, who shall practice or attempt to practice medicine in any of its departments, or perform or attempt to perform any surgical operation upon any person within the limits of said State, in violation of section one of this act, shall, upon conviction thereof, be fined in not less than fifty nor more than one hundred dollars for such offense; and upon conviction for second violation of this act, shall, in addition to the above fine, be imprisoned in the county jail of the county in which said offense shall have been committed for the term of thirty days, and in no case wherein this act shall have been violated shall any person so violating receive compensation for services rendered: *Provided*, That nothing herein contained shall in any way be construed to apply to any person practicing dentistry."

TOPEKA, August 11th.

J. W. Redden, Esq., Topeka, Kansas—DEAR SIR: Answering your several questions, will say:

1. That sections 282*o* and 282*p*, ch. 31, Compiled Laws 1879, are still in full force and unrepealed. I know of no other provisions of law relating to nuisances except article 11, ch. 31, Compiled Laws, to which you refer.

2. Section 5 of the law establishing the State Board of Health provides for a fine of ten dollars for each violation of any of the rules properly promulgated under the authority of that section; and section 8 provides a penalty for an official failure or neglect by local health officers. Section 9 provides also a penalty for failure of physicians to keep certain records and make certain reports.

I am of the opinion that for enforcement of all other rules and regulations of the State and local boards of health, you will have to depend on the enactment of ordinances by the several cities of the State. There are no other penalties fixed by the State law, and the State Board of Health nor the local boards of health are authorized to affix penalties enforcible by criminal proceedings for other violation of their rules.

Very respectfully, S. B. BRADFORD, *Attorney General.*

On August 22, 1885, I submitted the following communication to the Attorney General for his written opinion:

TOPEKA, KANSAS, August 22, 1885.

Attorney General Bradford—DEAR SIR: At your earliest convenience, I wish you would give me your written opinion upon the questions herewith submitted, and oblige

Yours truly, J. W. REDDEN, M. D.,
Secretary Kansas State Board Health.

1. Under the law creating the Kansas State Board of Health, have we the authority and power to attach penalties to all the rules, regulations and resolutions that we have adopted, or that we may think necessary to adopt for the promotion and protection of the public health? And under our statutory laws can said penalties be enforced by the county or State boards of health?

2. If a person has an inclosure containing one hundred hogs, more or less, which are fed and kept there, and located within the corporate limits of an incorporated town, and the county health officer believes said inclosure as it is managed is a public nuisance, and injurious to the public health, and impairs the comfort and peace of the neighbors, and yet the municipal authorities decline to take any steps in the premises, can the county health officer abate such nuisance at the expense of the owner?—or could the county attorney maintain a successful prosecution against said offenders?

3. If slaughter houses, pig pens and livery stables are conducted outside of the corporate limits of an incorporated town, and in plain violation of the rules, regulations and resolutions of the State Board of Health, and upon proper notifications the owners fail to remedy or abate the same, then could the county health officers be justified in abating or correcting said nuisance, or authorize the county attorney to prosecute said offenders?

J. W. Redden, M. D., Topeka, Kansas—DEAR SIR: Answering your request for my official opinion, I have to say:

1. The only rules for the State Board of Health or local boards of health appointed under chap. 129, Laws 1885, which can be enforced by penalties and fines, are those for violations for which a penalty is fixed by law. Violations of rules regulating the transportation of dead bodies of persons for burial beyond the county where death occurred, subject the offender to a fine of ten dollars for each offense. (See sec. 5, ch. 129, Laws 1885.) The failure to keep a record of the deaths, subjects physicians to a fine of ten dollars for each and every offense. All other rules and regulations of the State and local boards of health are merely advisory, and compliance therewith cannot be enforced by penalties fixed by the State Board of Health.

2. A nuisance such as stated in your second question cannot be summarily abated by the health officers, nor is there any criminal statute under which the owner would be

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subjected to a penalty for maintaining such nuisance. The county attorney might maintain a civil action in the name of the State, to abate the nuisance. Or any person specially injured thereby might maintain such action. The only criminal statute on the subject of nuisances is art. 11, of chap. 51 Comp. Laws. So far as any nuisance exists within the provisions of that act, they may be proceeded against criminally, but any nuisance which is of a private nature, and the continuance of which is an injury to the community at large, can be abated by civil action in the name of the State. Private persons can abate such nuisances by action only when they are specially injured thereby.

S. B. BRADFORD, *Attorney General.*

The general health throughout the State, so far as has been reported by county health officers, has been unusually good, and comparatively free from epidemics. Dr. Miles, health officer of Phillips county, reports that in September he saw two cases of intermittent fever—the first case he had seen in his county that had orginated there, during his practice of eight years in that county.

Dr. Burt, county health officer of Nemaha county, sends the following:

CENTRALIA, KAS., Sept. 7, 1885.

J. W. Redden, M. D., Topeka, Kansas—DEAR DOCTOR: In response to your invitation to send anything of interest occurring in my vicinity that bears on public hygiene, I beg leave to report the following:

Jan.—. Was called to see H——, aged 24; dysentery. The weather was very cold, the roads sometimes impassable with drifts. (He lived ten miles from this place.) I only saw him a few times. Not apprehending much danger, and having occasion to leave for a time, I directed them to call on Dr. F——, of the next town, if he should need anything more. On my return I found him very bad, and one of the children four years old was down with the same disease. They both died that night, and the next morning another young man, 17 years old, was attacked.

We then of course began to investigate the surroundings, to find, if possible, the cause. The family, fourteen or fifteen in number, had for one year been living in a stone house or hut twenty-one years old with a small "lean-to" and attic; the house built solid from the ground—that is, no ventilation and underwork. The floor was of rough, hard wood, with cracks half or three-quarters of an inch wide, through which the sweepings and wash-water had passed. It was situated near the bottom of a small draw; the ground sloping three ways towards the house. The well was in the lowest part of the yard. The slops were emptied in the most convenient place, and the domestic animals roamed at will. The weather was then warm, and a black stream of water was running down near the well.

Our conclusion was, that the cause of the disease was filth and crowd poison, and the disease the same as camp dysentery, so fatal in the army.

In spite of the low condition of the last case, we thought it better to move the whole family, placing a bed in a covered wagon for the sick boy. That night another boy, 14 years old, who had driven the cattle to the new place, was attacked, and the next day all the rest of the family except two, but in a milder form, from which they all recovered. The boy who was attacked before leaving the old house died, however, thus making three deaths in all. Eight months previous a daughter who had visited them had the same disease. The owner of the old place visited them about that time, and by my advice built a new house, and in taking up the floors of the stone house he found such a mass of filth that he feared to use it even for a horse stable. I might add that the last cases attacked were treated with ipecac followed by quinine, bismuth and opiates, with most happy results.

The third case was of the fulminant form, having as high as one hundred operations in twenty-four hours, of blood, mucus, and large quantities of bloody serum. All the family had had measles, from which they had recovered; but this doubtless had made them more susceptible to the poison.

In many of our farm-houses no precautions are taken. Pigs, geese and ducks are allowed to roam at will, and sometimes duck-ponds are made near the well or on the shady side of the house. High weeds abound, and all sorts of rubbish is emptied near the house. Even some of our otherwise neat housekeepers empty dish and wash water at the door, thus saturating the soil; or it is allowed to stand in drains. Houses are placed in low situations, and some of our old "border days" huts are reeking with exhalations. Patients who would otherwise rally from disease succumb to the deadly poison that has saturated their system.

A. J. BEST, M. D.

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This Board should, I think, pass a resolution requiring burial permits in every case before interment takes place, with a penalty attached for failure to comply with said resolution; and prepare a blank form of certificate, in compliance with said resolution. Likewise, authorize the Secretary, or a special committee, to prepare pamphlets on instructions for compiling the condensed returns of deaths; concerning the vaccination of school children, and contagious diseases and their prevention, to be sent to every physician and county clerk in the State. Likewise, blank returns of vaccination certificates, to be furnished the principal or teacher of every common school in the State. I have received a descriptive circular of a filth and garbage cremating machine, considered the greatest sanitary necessity of the age, which I herewith submit for the examination and consideration of the members.

An analytical chemist and a scientific civil engineer agreed to furnish a thorough analysis, with brief report, of the water from the wells of the State Reform School.

I have not procured the seal as per the design adopted, from the simple fact that to get a suitable one with a lithograph for our papers will cost the sum of thirty-five dollars. Being without any funds, and at considerable necessary expenses for postage, express and other incidentals, I thought it prudent to postpone the purchase of the seal for a short time.

Anyone who has given any special attention to those dreaded plagues, cholera and small-pox, now prevailing so extensively and with such an unusual per cent. of mortality, as shown particularly in Spain and the province of Montreal, Canada, is firmly convinced of the great danger and even probability of our country being visited by said diseases during the ensuing year, and is looking to this Board for the rigid enforcement of all sanitary measures that will promote cleanliness and purity, and place every community in the very best possible condition to meet and repel any and all epidemics of a virulent or contagious nature.

In conclusion, permit me to make the following suggestions:

That this Board adopt rules pertaining to the transportation of the dead, and secure the ratification of same by the railroads and express companies in this State, Missouri, Illinois, Iowa, and any other State that is thought necessary.

The following scientific subjects are of sufficient importance to demand the consideration of this Board at the very earliest practical moment: The sewerage system, its objections and uses; our water supply, its source and analysis; our public buildings, their construction, ventilation, deposit, and sewerage; our ice supply, its purity and impurity; the danger of communicating contagious or infectious diseases through the medium of rags, both domestic and foreign.

Thorough and careful examination of our law convinces us that it has defects, and needs changes and additions to make it more effective, so as to confer ample and unquestioned powers and authorities upon the Board, for the efficient and prompt execution of all rules, regulations and resolutions, and the enforcement of the penalties attached to same. And would it not be wise to appoint a revision committee at this session, who will take such action as their judgment will approve, and report at the December session, so that it may be in legal form and complete, ready for adoption by the State Legislature at its approaching session?

Finally, permit me to indulge the hope that this session may not be as brief or hasty as our last; but that each member may take ample time to investigate every department of our work, leaving no part crude or unfin-

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ished, but inaugurate such reforms and plan such achievements as will sustain and elevate the essential department of State work—thus confirming that cardinal principle, that the public health insures public wealth. Then you will merit, and receive, the universal approbation of a grateful commonwealth. Respectfully, J. W. REDDEN, *Secretary.*

Dr. Welch offered the following resolution, which was adopted:

Resolved, That the State Board of Health earnestly urge that all local boards of health, municipal boards of health, and all physicians, demand that all persons practicing medicine or midwifery in this State shall comply with the medical law of 1870.

On motion of Dr. Stormont, a special committee of three was appointed on revision of rules, regulations and resolutions, to report at the next meeting.

The President appointed Drs. Stormont, Welch and Surber as said committee.

The President, on motion, appointed Drs. Stormont, Jenny and Welch on revision of the law creating the State and local boards of health, to report at the next meeting.

The Executive Committee had no report to present.

The Secretary was authorized to extend the time of registration and vaccination until such time as he thought advisable, and notify the county health officers.

Dr. Stormont presented a report on the State Reform School epidemic and the water supply.

Col. Wm. Tweeddale gave a report and experiments on the condition and analysis of the water used at the State Reform School.

Dr. J. C. McClintock, member of the Topeka Board of Health, then read a report on epidemic small-pox as it prevailed in this city during the past spring and summer.

The standing and special committees had no reports to make.

On motion, State Board adjourned until 1 o'clock P. M.

State Board of Health convened at 1 o'clock P. M.

Auditing of bills was postponed until next meeting.

The Secretary was authorized to prepare all necessary blanks and papers for distribution by the county health officers, as they were needed.

The subject of burial permits to be used in all cases of interment, was deferred until the next session of the Board.

The consideration of the Secretary's salary was also postponed until the quarterly session in December.

The subject of cerebro-spinal meningitis was presented to the members of the Board for an expression of opinion as to whether or not it was a contagious disease, and they decided that it was not.

The Secretary, with Dr. Stormont, was authorized to prepare a blank certificate and coupons for the transportation of the dead, and use all means to have it uniform with adjoining States.

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Dr. J. P. Lewis, county health officer, presented a report of the State Reform School epidemic.

Dr. J. C. McClintock then presented a report of the result of investigation and analysis of some of the wells of the city.

The reports of Dr. McClintock and Dr. Lewis are as follows:

TOPEKA, KANSAS, Sept. 10, 1885.

To the Secretary of State Board of Health—DEAR SIR: I have the honor to make the following report of an epidemic of small-pox, or more properly, perhaps, two epidemics, running almost parallel courses, in the city of Topeka in the present year.

On January 1st, 1885, Mr. McGothlin and family arrived in this city from Mound City, Illinois, where there was a case of variola. Mrs. McGothlin was attacked by the disease while on the way to Topeka. She had been vaccinated, and was confined to her bed only two days. The other members of her family were protected by a previous attack of the disease, in 1867, except two unvaccinated children, who contracted the malady on January 6th, at which time they were visited and quarantined by Drs. Hibben and Miner, then members of the Board of Health, which quarantine was not raised until March 1st, when they were requested to destroy their effects.

On March 4th, their house taking fire, they, instead of destroying, moved their effects to a large building known as the "Ogee," in the suburbs of North Topeka, in and near which the disease spread, first appearing March 15th, in the owner, Mr. Ogee, who died March 24th.

Again on April 7th, in the two children of Roz. Andress, one of whom died in two weeks, the other recovering.

On April 15th, Mrs. McMillan contracted the disease, and made a good recovery.

Lastly, a nurse, Mrs. Tilly King, who supposed she was protected by a previous attack, but which is now thought to have been chicken-pox, suffered from the disease, recovering with impaired vision. In a house in the same yard Mrs. Cummings was attacked, and died May 19th.

The quarantine was continued until June 10th, when new goods were furnished to replace those destroyed by the present Board of Health; but by a misunderstanding a delay occurred in furnishing Mr. Cummings with a new suit, during which interval he, although he had been previously employed as a guard, and under promise to remain in the quarantine lines until the arrival of his new suit, and knowing his clothing to be infected, visited the family of Mr. James Curry, whose wife fourteen days thereafter showed symptoms of the disease, followed by abortion and death. Her two-year-old child died the same week, while Mrs. Curry's mother recovered from a moderately severe attack. No others of the family had the disease.

These were the last cases of what I call the first epidemic of the year 1885.

When on April 20th the present Board of Health of the city was organized, the report was received of a new case of small-pox, which, when visited, was found to have appeared in a part of North Topeka several blocks distant from any of the preceding cases, and the strictest inquiry failed to discover that any communication had existed with the infected houses. Further inquiry developed the fact that the house in which this new case was found was one in which an outbreak of the disease had more than once previously occurred. The house was an old shell with the plastering loose and half knocked off. It stood between and within about

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three feet of two other small frame buildings, which with the infected house coutained thirty-five people. After learning that ineffectual attempts had been made to disinfect the house, it was decided to move out the occupants and burn the building, which was afterward carried into effect. The Board closed some of the schools and churches.

Several attempts were made to build a pest-house and to move the patient from this crowded part of the city, but were not successful owing to the violent opposition of some of the citizens, until April 25th, when a building was erected under the protection of the police force, aided by forty special officers. The same night, several attempts were made unsuccessfully to remove the patient, but it was not until daylight of the following morning that the mob had so diminished as to allow the patient to be carried to the newly-erected building. All the members of the family, six in number, contracted the disease, as did also Mr. McReynolds and daughter, and a son of Mr. Wheeler—all occupants of the infected house. All were removed to the hospital—the sick going in, while those who had been exposed were vaccinated and quarantined in separate tents, to await the development or non-development of the disease. In all, ten people from the infected house were admitted to the hospital, with the result of two deaths from hemorrhagic small-pox. One recovered, with "Bright's disease" as a sequel, from a confluent case. There were seven complete recoveries from discrete and semi-confluent cases.

A large number of exposures had been allowed on the day previous to our organization as a board of health. A list of the exposed was obtained, and they were either quarantined or kept under surveillance, but no case was reported except in the family of Mr. White, of whose members all at home were attacked by the disease; but all recovered except one child, whose premature birth was caused by the development of the malady in its mother's blood. All infected goods and houses were either disinfected or destroyed, under the immediate supervision of the Board.

From the first admission to the closing of the pest-house was forty-two days, and as almost two months have elapsed since the recovery of the last case, it is thought that the disease has been stamped out.

J. C. McClintock, M. D.,
Member of the Topeka Board of Health.

Dr. J. P. Lewis, county health officer, then read a report giving his views as to the nature, cause and condition of the Reform School endemic during his official visit to said institution. His report is as follows:

Topeka, August 6, 1885.

Dr. J. W. Redden, Secretary K. S. B. H.: To-day I was notified by Dr. Stormont of a supposed instance of typhoid fever at the Reform School for boys. I at once investigated the rumor, and found but four cases confined to the hospital proper, and but one of the four that could in any way be considered a true case of typhoid fever; but that one was a typical one of the alleged disease, having all the characteristics in such cases, namely, fever ranging from 101 to 103, with tympanetis, diarrhea, sordes, dry tongue, red eyes, furrowed in center, petechial spots over the body, accompanied with sudamina over chest, right iliac gurgling. Of the other three above mentioned, two were convalescing nicely, and one sick of but a few days' duration. Outside of the hospital were twelve suffering from supposed malarial fever, of an intermittent type.

Taking into consideration the two deaths that occurred in the institution

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last year of a typhoid form of fever, it is certainly hygienically true that there must be a specific cause for the then and present existing trouble. Accordingly, I made a complete tour of the entire building, and found it in an exceptionally clean condition. But the sewerage of the building, from bath-tub and necessary, is composed of four-inch glazed tiling, about five feet under ground, defective in its joints and running within fourteen feet of the well, which I shall call well No. 1, which supplies the bath-tub and culinary department. Well No. 1 is about thirty feet deep, with a cast-iron tube from top to bottom. If the water is impure from sewage, it must be after percolating through about thirty-eight or forty feet of sandy soil. The other well, No. 2, is within eight feet of the sewer pipe from the kitchen. This pipe is cast iron, three inches in diameter, and could not affect well No. 2; at least it is considered sound by the engineer of the institution.

On the 7th of August, in company with Dr. Stormont, we again visited the school. We found the same in effect as reported above.

In addition, the doctor procured some of the water from the above-named wells No. 1 and No. 2, and had it analyzed, and found in well No. 1 one-half grain of organic matter to the ounce; in well No. 2 one-fourth grain to the ounce.

On the 21st of the same month, again visited the school in company with Dr. Stormont. Found confined to bed nine cases; the most prominent being as follows: Fever ranging from normal to 103° F., all with coated tongues resembling malarial poison, but in a few cases dry with red and thickened edges, making a furrow down the center of the entire lingual organ. Diarrhea, accompanied with tenderness over the gastric and abdominal region. Since our first visit one case has died from sickness of a few days' duration.

It does seem that there are some underlying causes for the present trouble, independent of the water supply, as all drinking water came from well No. 2, which according to the analysis contains but one-fourth grain of organic matter per ounce. Since the above-named date there are others here more acquainted with the facts than the writer. J. P. LEWIS.

Dr. McClintock then presented a paper on the water of the wells of the city, its impurity, and tendency to generate disease. His report is as follows:

MR. PRESIDENT: The importance of the subject of the water supply of the city of Topeka, and our duty to the public, render it imperative that our citizens be made more fully aware of the polluted condition of the majority of their wells.

Of the great number of analyses of water made this year, we have found no water pure; in fact, pure water seldom or never is found in nature. A few specimens were good, a number usable, a larger number suspicious, and less number impure, which shows that the wells are truly in an alarming condition.

In one family several cases of dysentery existed. An examination of their premises and well, and an analysis of the water of this well, developed the fact that the water was contaminated by surface drainage, the well being in a low part of the lot, and slops being deposited within a few feet of the well.

On inquiry, other cases of the disease were found in the vicinity, as follows: In an adjoining house and near the impure well; and in a house in another block, the occupants of which houses drew their supply of water from the above-described well. No other cases of the disease were found in that part of the city.

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On another street typhoid fever has been prevalent in two houses, different seasons; probably fifteen or twenty persons having the disease, of whom ten were visited by the writer. The premises were examined, and it was found that both houses were supplied by the same well, which well was contaminated by being in direct communication with the privy vault, as proven by solutions being poured into the vault one day, to be dipped from the well on the following.

These two wells are cited merely as an illustration of the condition of many wells in our city.

In North Topeka the citizens have a theory that there exists beneath them two currents of water, the first, or subsoil water, carrying off all the surface and vault percolation, while the lower, from which their supply is drawn, is free from organic impurities; whereas the facts are, (and we are told that "facts are stubborn things,") that the water from their wells is polluted by the city drainage, the water being impure; and that such diseases as typhoid fever, diphtheria, etc., (diseases which are caused in most instances by the use of impure drinking water,) are prevalent in their midst.

In all parts of the city, uncemented vaults and cesspools are constructed, the contents of which are carried through the ground to wells perhaps a hundred, or in porous soils hundreds of feet distant; the coarser insoluble matters are separated, (until the soil is supersaturated,) and only the soluble, filtered portions may reach the well. So gradual may be the contamination, and so wedded to one water do we become, that even though the pollution can be detected by the sense of smell, parties using refuse to believe it impure, saying that "the water of their well is the best in the State; that it is bright, sparkling, and of a refreshing flavor." Yes, bright and sparkling, and with a flavor derived from the decomposition of sewage with which it is contaminated, thus outlining a great and growing danger.

What is now the remedy? We must clean the town, and *keep* it clean; every house and lot must be inspected; every sink, drain and well must be examined; every vault and cesspool must be properly walled and cemented; or dry earth or water closets for vaults substituted. Slop and house wash must not be thrown on the surface of the ground, except in such places and in such ways as that they may become oxidized. Further pollution of the soil must stop. We cannot live on such ground. The use of well water should be abandoned unless it is conclusively shown to be good.

The water of our cisterns is not much better than that of wells; though depending for its impurities on other conditions. It is often collected regardless of time or season. Over a city the air is rank with germs and foul gases, which are washed to the earth with the first of the rain. A time then comes in certain seasons when it may be safely collected and stored. The water furnished by the Topeka Water Supply Company has been analyzed by Mr. Church, (chemist A. T. & S. F. R. R.,) with the following result:

	Grains.
Organic matter	.291
Silica	.732
Alumina and oxide of iron	.533
Carbonate of lime	19.204
Carbonate of magnesia	1.878
Sulphate of magnesia	1.794
Sulphate of potassa	1.307
Sulphate of soda	1.583
Chloride of soda	5.145
Free ammonia	Trace.
Albuminod ammonia	.000
Total	32.467

In one United States gallon of 58,318 grains.

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From the above analysis it will be seen that there is an entire absence of the dangerous nitrates and the albuminoid ammonia. Therefore, the use of said water by the public, where it can be obtained, should be recommended.

Dr. Stormont was appointed to prepare a paper on "Sewage;" Dr. Welch, on "Contagious diseases;" Dr. Guibor, on "Filters and purification of water for drinking and culinary purposes;" Dr. Roberts, on "Heating and ventilating our homes and public buildings;" Dr. Wright, on "Our food supply;" Dr. Johnson, on "Prevention of diseases;" Dr. Surber, on "Our country homes, their sanitary condition;" Dr. Schenck, on "Hygiene of schools;" Dr. Jenny, on the "Ice supply, and its impurities;" and Dr. McClintock, of the Topeka Board of Health, was requested to present a report of his investigations of our "Ice supply and its condition."

All of said reports and papers to be presented at the next session of the Board, in December.

On motion, the Board adjourned until December 15, 1885.

J. W. REDDEN, M.D., *Secretary.*

TOPEKA, KANSAS, December 15, 1885.

The Kansas State Board of Health convened in regular quarterly session, at the office of the Secretary, at 4 P. M. Present: Drs. Stormont, Schenck, and Roberts.

On motion of Dr. Stormont, Dr. Schenck was elected President *pro tem.*, Dr. Johnson, the President, being absent.

No quorum being present, on motion the Board adjourned until 7:30 P. M.

7:30 P. M.—The State Board of Health met pursuant to adjournment; Dr. Schenck, President *pro tem.*, in the chair. Present: Drs. Roberts, Stormont, and Schenck.

There being no quorum, the Board adjourned until 9 A. M., December 16th.

J. W. REDDEN, *Secretary.*

TOPEKA, December 16, 1885.

The State Board of Health met pursuant to adjournment; the President, Dr. Johnson, in the chair. Present: Doctors Johnson, Stormont, Welch, Roberts, Jenny, and Schenck.

Dr. Guibor sent a letter stating that he was absent in the State of Arkansas, and could not possibly attend this session of the Board.

The reading of the minutes of the last session was, on motion, dispensed with.

The Secretary then presented his report, reviewing the sanitary work, its advancement and results, during the past quarter. On motion, said report was received.

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The Executive Committee had no report to present.

Drs. Stormont, Guibor, Jenny, Roberts and Wright, not having their papers ready on the subjects assigned them, on motion were continued until the next regular session.

Dr. Johnson presented his paper on "Prevention of Disease." On motion said paper was received.

Dr. Schenck then presented and read his paper on "Small-Pox and its Prophylaxis." On motion, said paper was received.

On motion of Dr. Roberts, the State Board of Health proceeded to fix the salary of the Secretary, and on motion it was fixed at twenty-five hundred dollars, and said action was officially approved by the Governor, as follows:

STATE OF KANSAS, EXECUTIVE DEPARTMENT,
TOPEKA, December 30, 1885.

Dr. J. W. Redden, Secretary State Board of Health—DEAR SIR: I have the honor to acknowledge the receipt of a letter, signed by the President and Secretary of the State Board of Health, informing me that, in accordance with the authority vested in said Board by section 2 of chapter 129, Session Laws of 1885, the Board had fixed the salary of its Secretary at twenty-five hundred dollars per annum, and requesting my approval of the same.

The action of the Board is hereby approved.

JNO. A. MARTIN, *Governor.*

Adjourned until 1:30 P. M.

1:30 P. M.—The Society convened pursuant to adjournment; the President, Dr. Johnson, in the chair. Present: Drs. Johnson, Welch, Stormont, Jenny, and Surber.

Dr. Surber read a paper on "Our Country Homes, their Sanitary Condition." Dr. Welch presented his paper on "Contagious Diseases." On motion, the papers were received.

Dr. McClintock, chairman of the city of Topeka Board of Health, presented report of his investigations of our "Ice Supply, and its Condition." On motion, said report was received.

All of said papers, the quarterly report of the Secretary, and the annual reports of the various county health officers throughout the State, are recorded on subsequent pages.

Dr. Stormont, chairman of the Committee on Revision of the State Board of Health law, submitted the following report:

The Committee to whom was referred the subject of suggesting amendments to the law creating local and State boards of health in this State would respectfully report as follows: Any law creating a board of health, in order to enable said board to do the work which is or should be required of it, must give such board clear and unquestionable power to make and enforce such rules and regulations as it may deem necessary to protect the public health. At least this much must be granted. The law under which our State and local boards were organized and are working, is very deficient in this respect. Their rules and regulations are largely advisory, and not

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mandatory. They have no power to enforce them, in many important particulars.

We therefore recommend this subject be referred to a special committee to revise the entire act, under the advice and direction of a thoroughly competent lawyer, taking as models the health laws of Michigan and Illinois; and that after said revised act has been prepared it be submitted to each member of this Board, and, if approved by a majority thereof, the committee be instructed to have it introduced into this Legislature this winter for enactment.

D. W. STORMONT.
J. MILTON WELCH.
J. W. JENNY.

On motion, said report was adopted, and referred to the Executive Committee for legislation.

The Committee on Revision of Rules, Regulations and Resolutions was continued until the next session of the Board.

On motion, the Secretary was authorized to issue such circular letters or circulars as in his judgment would aid the advancement of sanitary science or the improvement of our law.

On motion, the medical practice act was referred to the Executive Committee to prepare an amendment, so that the State Board of Health may have authority to require the county health officers to faithfully execute the same.

On motion, all physicians are required to report all cases of premature labor, where death ensues, on or after the seventh month, as still-births.

Various bills and accounts were audited and approved by the Board. Said documents will be found on subsequent pages of this report.

On motion, the State Board adjourned to meet in regular quarterly session on the second Thursday of March, 1886, at the office of the Secretary, in Topeka.

J. W. REDDEN, M.D., *Secretary.*

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QUARTERLY REPORT OF SECRETARY TO BOARD,

AT ITS MEETING, DECEMBER 16, 1885.

MR. PRESIDENT, AND GENTLEMEN: Since our last quarterly meeting, in September, the business pertaining to the office of the Secretary has been steadily and rapidly increasing, and assumed vast proportions.

My time has been regularly occupied not only during the day, but frequently at night. To have discharged the duties of this office as efficiently, thoroughly and systematically as I would have desired, would have required the constant services of two competent clerks, besides my own labor and time. The pressure of important business has been so great and constant, that I have absolutely had to forego and abandon the time that should have been devoted to the investigation of sanitary problems and the perusal of sanitary periodicals that would enable me to keep pace with the progress of the age.

In order to have the business as complete as possible for the close of the year, I have had, necessarily, to postpone my last quarterly report until the eve of our session, and, as a consequence, it will not be as concise, systematic or instructive as it might have been.

Since the 10th of last April, when our State Board was organized, there have been received at this office communications upon all imaginable subjects, and asking for information as diversified as could be imagined; and yet requiring prompt and specific answers.

The number of letters received and answered is as follows:

From State boards of health	46
From members of the Kansas State Board of Health	54
From county clerks in the State	172
From county health officers	365
From physicians and others in Kansas, and also from other States	170
Total	807

At our last session I reported that there were twenty counties which had not elected a county health officer, or made any efforts to recognize or enforce our State law. Since that time fourteen of these counties have organized, and are at work, some of them being very active—thus leaving six who stand aloof and make no efforts to recognize the necessity of sanitary reform in their limits. The list of these six counties is as follows: Comanche, Cherokee, Dickinson, Doniphan, Edwards, and last, but by no means least, Leavenworth. Of these six counties, notwithstanding repeated and persistent efforts to arouse them to action, by circular letters, personal communication, and individual solicitation, not a word or line has ever been received from

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Comanche, Cherokee, Dickinson, or Edwards. Doniphan and Leavenworth have made efforts, at least through their county clerks, to recognize our law, and requested that county health officers be appointed, as the following communications will show:

TROY, Nov. 24, 1885.

Hon. J. W. Redden, Secretary State Board of Health, Topeka, Kansas—DEAR SIR: Yours, with inclosed blanks, (Oct. 31,) received, and the matter again laid before the board of county commissioners. In answer, would state, that there has been no action taken as to the appointment of health officer, for the one reason the board could not agree upon anyone to act in that official capacity. Yours truly,

JOSEPH SCHLETZBAUM, *County Clerk.*

TROY, Dec. 11, 1885.

Hon. J. W. Redden, Secretary State Board of Health, Topeka, Kansas—DEAR SIR: In reply to yours of the 5th inst., will state, that the sanitary condition of this county is excellent; public health also. The County Commissioners have made no appointment of a health officer, not having agreed on anyone as yet. I have laid the matter before them. The physicians' register contains only twenty-one names, and about one-half of them do not reside in this county any more. If wanted, will send names of those who to my knowledge remain here, but cannot fill blanks sent me, as the record only shows the school graduated from.

Yours truly, JOSEPH SCHLETZBAUM, *County Clerk.*

LEAVENWORTH, KANSAS, Nov. 21, 1885.

Hon. J. W. Redden, Secretary State Board of Health, Topeka, Kansas—DEAR SIR: In reply to yours of the 11th inst., will say, that the county board have taken no action yet, and I lay the matter before them every session, and will read your letter to them; they have given no reason yet for not complying with the law. I have no blanks. I saw what Dr. Simpson had, and told him (as I understood it) that he must get them filled out, and after that was done I would make copies and certify to one, and send to you, and keep one myself. If you want me to get them filled, you can send blanks, and I will get them filled if I can. I will insert notice in the papers to that effect. I will do what I can to get the board to comply with the law. Yours truly, J. W. NIEHAUS, *County Clerk.*

The following is a copy of the letter sent the delinquent counties, hoping it might arouse some interest among the county officials so that they would, before the close of the year, select some physician as county health officer, but thus far all to no purpose:

TOPEKA, KANSAS, November 11, 1885.

County Clerk of ——— *County*—DEAR SIR: Have the county commissioners taken any steps yet to appoint a county health officer? If so, whom, and when was he appointed? If not, what do they propose to do? What interest, if any, are the county commissioners and the physicians in your county taking in sanitary or State Board of Health matters?

I most earnestly wish that the county commissioners would appoint some good physician as county health officer at once, so that he could do some work, and prepare a brief report, before December 15th, of his work in the county, as at that date I must close my work and prepare the first annual report for publication.

I regret very much the necessity of reporting to the Governor, and the

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State Legislature, that your county is one of the very few which persistently and absolutely decline to do any thing in this line, or pay any attention to the plain requirements of the State law.

Please call attention of the county commissioners to these facts, and to the inclosed circular letter, at your earliest convenience, and urge them to comply with the law without delay. Write me promptly and in full, and oblige, Yours truly, J. W. REDDEN, *Secretary.*

I sent to all the county clerks of these counties registration blanks, and urged them to notify the physicians to register, and send me copy of the registration, but up to the present time they have failed to recognize their allegiance or obligation to the State Board of Health, or the State law creating same.

The counties of Franklin, Neosho and Trego appointed county health officers, who received the registration blanks, rules, regulations and resolutions, copies of the law, and circular letters of instructions; but became passive, inactive, and virtually accomplished nothing.

The county clerk of Franklin county has sent in the registration report, which you will perceive, when I refer to that department, is about an average report. I wrote the county clerks of Doniphan and Leavenworth to get the registration as complete as possible, and send copy of same at earliest opportunity, but have not yet received either.

This leaves seventy-nine counties now organized under our law, the great majority of which are doing a noble and commendable work; having received full supplies of blanks, certificates, circulars, and instructions.

The vaccination question is one which has given rise to some little discussion, and aroused an intense and general interest in many localities; and upon examining our law I had serious doubts as to our authority to make the rule compulsory, however advisable or commendable and necessary it might be considered. Receiving many letters of inquiry upon it and other points, I referred the matter to the Attorney General for his written opinion; and also addressed a communication to Prof. Lawhead, the State Superintendent of Public Instruction, as to his views and official opinion on this important subject. The following official communications and replies will explain themselves:

OPINION OF THE ATTORNEY GENERAL.

TOPEKA, KANSAS, October 12, 1885.

Attorney General Bradford—DEAR SIR: At your very earliest convenience, you will please give me your written opinion upon the following questions, and points of law:

First: Under our laws, can the State Board of Health, or local health officer, enforce the compulsory vaccination rule, and prevent children from attending schools unless they present certificates of successful vaccination?

Second: Under the law of 1870, entitled "Who shall not practice medicine," in case of prosecution, will it devolve upon the county health officer to prove the negative; that is, that said physician was not a graduate of some respectable school of medicine, "nor had been continually engaged in the practice of medicine for the period of ten years or more"?—or will

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said physician upon trial be required to establish the fact that he has fully complied with the provisions of the law? Does the following clause, "That in all cases when any person has been continuously engaged in the practice of medicine for a period of ten years or more," have reference as to time, to the date when said law went into effect, or to the time when the qualifications of any physician should be legally tested? And does the time referred to require that said period of ten years or more should be in the State of Kansas exclusively, or in any and all States combined?

Third: I call your attention to the latter part of section 7 and the first part of section 8 of the law for the State and local boards of health. Under said sections, should the Secretary of the State Board of Health furnish all necessary blanks to the municipal board of health, to be distributed by them to the physicians within said municipal jurisdiction? And should all returns within said municipal jurisdiction be made to said municipal board of health, and they report to the Secretary of the State Board of Health, or should all blanks and forms for distribution to every physician and all returns be made to him, (including the physicians within said municipal jurisdiction, in both instances)? In other words, has the county health officer any control of the supplies and returns of the physicians within a municipal jurisdiction that has an organized municipal board of health, or has said municipal health board entire control of the health interests within their jurisdiction subject to the provisions of said State law?

Fourth: Do said sections apply to all cities, or to cities of the first class only? Yours truly, J. W. REDDEN, M. D.,

Secretary Kansas State Board of Health.

TOPEKA, November 3, 1885.

Dr. J. W. Redden, Secretary State Board of Health, Topeka, Kansas—DEAR SIR: I herewith answer your several questions, submitted in your favor of the 12th ult.

To the first question, as to whether the resolution that no pupil shall be admitted to the public schools in this State after a certain date without presenting satisfactory evidence of vaccination can be compulsorily enforced, I answer, that however desirable such a resolution may be, it can only be considered under the law as it now exists, as advisory. The various boards of education, and district boards, have general control over the school, and have power to make necessary rules and regulations to promote the efficiency of the school and protect the health of the pupils, and may probably make and enforce a rule of this kind; but the resolution considered merely as a rule and regulation of the State Board of Health can only be considered as advisory upon the school authorities.

In answer to your second question, will say: That in a prosecution under chapter 68, laws 1870, it will not be necessary for the State to prove in the first instance that the person charged has not attended the full course of instruction and graduated in some school of medicine, etc. It is a rule covering the admission of evidence. Where the special matter of a negative averment lies peculiarly within the knowledge of the other party, the averment is taken as true unless disproved by that party.

Third: The clause, "that in all cases when any person has been continuously engaged in the practice of medicine for a period of ten years or more," has reference as to the time of commencement of a prosecution under this law, and not to the time when the law went into effect.

Fourth: Sec. 5 of the law creating the State Board of Health provides that

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they shall prepare blank forms necessary for obtaining and preserving certain certificates and records, and forward such of them to the health officers of local boards of health as may be required by physicians, assessors, local boards and others whose duty it is to gather information in relation to the vital statistics of the State. By section 7, the county commissioners of the several counties shall act as local boards of health for their respective counties. These several local boards are required to elect a health officer. He is the person referred to in section 8, whose duty it is to receive and distribute without delay all forms from the State Board of Health to the rightful persons. I think that the law is plain that it is the duty of the State Board of Health to furnish all necessary blanks to this health officer elected by the board of county commissioners, and that it is his duty to receive and distribute the same; and he is also to receive and transmit to the State Board of Health all returns from physicians, assessors and local boards. Boards of health existing by authority of the municipal law are not superseded by the board of health created by section 7, but they are to be governed by the provisions of this law as well as the municipal regulations. Blanks for any municipal board of health should be sent to the health officer of the county, who is made the channel of communication by the State Board of Health, to all physicians, assessors and local boards of health existing under the authority of this act or some municipal ordinance.

Your last question is, whether said sections 7 and 8 apply to all cities, or to cities of the first class only. I am of the opinion that it applies to all cities in which there is a board of health.

Yours very respectfully,

S. B. BRADFORD, *Attorney General.*

TOPEKA, KANSAS, November 4, 1885.

Attorney General—DEAR SIR: You will please give me your written opinion upon the following questions at law, at your earliest convenience:

First: In those counties where the county commissioners postpone from time to time the election of a physician as county health officer, in compliance with section 7 of the act to create State and local boards of health, and thus evade the spirit and letter of the State Board of Health law, what course should be pursued to compel said county boards to organize as local boards of health and execute the provisions of said law?

Second: Where contagious diseases, as small-pox or scarlet fever, are prevailing within the limits of an incorporated city, and the public health absolutely requires that said cases and families be quarantined and supplied with medicines, nourishment and attention, and said city authorities either have no city health board, or, having a municipal board of health, absolutely refuse to exercise such precautionary measures, or even furnish attention and supplies for said helpless and afflicted people, does not the State Board of Health law require the county health officer and the county commissioners to see that said parties be isolated and quarantined and cared for? And have not said county authorities proper and full recourse upon said municipal authorities for reimbursement of all expenses incurred in such emergencies?

Third: I desire to call your attention to section 5 of the State Board of Health law, as to the duties of said State Board of Health and the Secretary in collecting and supervising the registration of prevailing diseases and vital statistics, and penalty for violation; and to the first part of section 11, as to the duty of the State Board of Health to make its annual report to the Governor, setting forth, among other items, "the names of physicians registered." Also, to the law of 1870, designating who shall practice medi-

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cine in Kansas; and to rule No. 24, for registration. Taking all these statements together, have the State and local boards of health the authority and power to compel the observance of said rule No. 24, or are the powers therein delegated only advisory and commendatory? The State law makes it the duty of every health officer to distribute the blank certificates for returns of births and deaths to every physician in his county; the same law, by implication at least, requires that every physician should register; and the law of 1870 decides who shall legally practice medicine. Now, under these conditions, are county health officers required to furnish said blank certificates to any physicians but those who register? And is it not to be presumed that any physician failing to register has failed to comply with section 9, and will be subject to the fine therein specified?

Yours truly, J. W. REDDEN, M.D.,
Secretary Kansas State Board Health.

TOPEKA, November 11, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR SIR: Your favor of November 4th, received. In answer to your first question, I will say, that if the board of county commissioners neglect or refuse from time to time the election of a physician, as county health officer, I see no way by which the State Board of Health can compel the appointment of such physician, except to prosecute the board of county commissioners for non-performance of their duties. I do not mean to say by this that the State Board of Health, as a board, can prosecute the commissioner for failing to elect a county health officer; the prosecution would have to be brought by an individual, a resident of the county, who may specify by reason of the non-action of the board.

In answer to your second, I will say, if the small-pox, scarlet fever, or other highly contagious diseases, should prevail in a municipal corporation such as a city, which has no board of health created by ordinance, then in that event the county board of health have jurisdiction, and it is their duty to adopt a private quarantine regulation, and if possible enforce the same. The county is liable for the costs and expenses of maintaining the quarantine, but in some cases they might force a reimbursement from the city.

In answer to your third question, allow me to say: Section 5 of ch. 129, Laws 1885, defines it to be the duty of the State Board of Health to supervise the registration of marriages, births, and deaths, etc. The word "supervise" as used in this section is qualified by the following sentence: "They shall prepare the blank forms necessary for obtaining and preserving such records, and forward such of them to the health officer of the local boards as may be required by physicians, assessors, local boards, and others whose duty it is to gather information in relation to the vital statistics of the State." The supervision of that board consists in furnishing to the local boards of health, blanks upon which they may make their returns, giving such information as you may require touching the vital statistics of the State, and other statistics named in the act. You will see, therefore, that your supervision consists in the directing, by your advice, circulars and blanks, the scope and extent of inquiry, and does not mean a physical supervision and personal visits to the counties. Section 5 also provides that the State Board of Health shall prepare the form for a permit to transport dead bodies beyond the county where the death occurs and the forms of coupons to be attached thereto, and to be detached by each of the common carriers handling the body, and provides that any person violating the rules adopted by the Board for the transportation of dead bodies shall be liable to a fine of

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ten dollars for each offense. The fine here spoken of refers to violations of the rules adopted for the transportation of dead bodies.

Section 11 requires the Board to commence on or before the first Monday of January in each year to make a report in writing to the Governor, giving the vital statistics and the sanitary prospects of the State. It requires your Board to give the names of its officers, agents, and the names of the physicians registered; requires you to set forth the action of the Board, and to make such statistics as you may think proper on the subject of future legislation. There seems to be no penalty attached for failing to make this report, or any part thereof. The Legislature in passing the act takes into consideration the law in existence and in force at the time the act is passed. If physicians fail or refuse to register after being duly notified by its board of health, or its officers or agents, the penalty is upon them, if any penalty exists. Chapter 68, Laws 1870, does not fix any penalty for failing to register, but requires that a physician, if he should be questioned by a legal inquiry, shall furnish proof of the fact that he has attended two full courses of instruction; that he is a man of good moral character, etc. Your Board cannot prescribe a rule and attach a penalty thereto in the shape of a fine or imprisonment; that is not provided for in the statute. That is to say, if the law does not prescribe that physicians shall register, and fix a penalty if they fail, your Board cannot perform the legislative act of fixing that penalty. If you can advise with the physicians of this State, and for the good of the profession and for the health of the people of this State can prevail upon all physicians to register with the county clerk, you will have accomplished all that the law requires in that particular. The statute defines what the crimes are, and fixes the penalty for violation of the law.

Replying to your fourth proposition, permit me to say: That I do not understand that it is the duty of the State Board of Health to furnish individual physicians of the State of Kansas with all the blanks necessary to report their business. It is sufficient for your Board to furnish to the local health officer such blanks as may be required to enable him to present to you the statistics required under the law. I see no difference in the ability to report any physician who has registered and one who has not; therefore if a physician who has not registered with the county clerk desires to make a report to your health officer, it is the duty of your Board to receive his report, and consider the same to the extent of the information it gives. Your local health officer might glean from unofficial individuals very valuable information in making your reports.

In conclusion, permit me to say: That the duties imposed upon your Board are almost exclusively advisory. You cannot inflict a penalty in the nature of a fine or imprisonment not provided in the statute.

Yours, &c., S. B. BRADFORD, *Attorney General.*

OPINION OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION.

TOPEKA, KANSAS, November 4, 1885.

Prof. Lawhead, State Superintendent of Public Instruction—DEAR SIR: Will you be kind enough to write me your views and opinion as to the importance and necessity of prompt and universal observance of resolution number 4 of the State Board of Health, on vaccination; and write an official letter of advice and commendation for each county superintendent, school officer and school teacher in the State of Kansas, urging them to use every available effort to have said resolution fully and thoroughly enforced,

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that the State of Kansas may be placed in the very best possible condition for the prevention and control of that paralyzing plague, small-pox, as it threatens our prosperous borders during the coming winter.

Your earliest attention will oblige.

Yours truly, J. W. REDDEN, M.D.,
Secretary Kansas State Board of Health.

TOPEKA, KANSAS, November 10, 1885.

J. W. Redden, Secretary State Board Health, Topeka, Kansas—DEAR SIR: In compliance with request contained in your communication of the 4th instant, permit me to say that I most heartily concur in the views expressed in said communication. In my judgment, the best way to stamp out this dreadful scourage, small-pox, or rather, prevent its introduction, is to use energetic measures, as careful, wise, and well-arranged plans are more than half the battle. Truly yours, J. H. LAWHEAD,
State Superintendent of Public Instruction.

TOPEKA, KAS., NOV. 10, 1885.

To the County Superintendents and School Officers of the State of Kansas: Your attention is respectfully called to resolution No. 4, issued by the State Board of Health, requiring the immediate vaccination of all pupils in the public schools of this State, to prevent the spread of that loathsome disease, small-pox, with a visitation of which we are now threatened. I most earnestly urge upon your immediate attention the necessity of having all the pupils of our public schools vaccinated at once, and thereby prevent the introduction of this fatal epidemic within the borders of our State, or should it obtain a lodgment within our State, reduce the loss therefrom to the lowest limit. In furtherance of this matter, let me urge each county superintendent and school officer to immediately consult the health officer of his county in regard to the best means to secure the immediate vaccination of all pupils under his charge, in compliance with the resolution of said board. Most respectfully yours, J. H. LAWHEAD,
State Superintendent of Public Instruction.

In accordance with the opinions above expressed, I issued a circular letter and sent to all county health officers, asking them for their annual report, and gave them the substance of the letters of the Attorney General and State Superintendent of Public Instruction upon vaccination.

After the blank certificates of returns of marriages, births, still-births and deaths were sent to the various county health officers for distribution, believing the returns might create some confusion, and seeing the law was emphatic in its language, I issued the following circular letter, and sent a sufficient number to be given to every person who had received any of said certificates, whether physician, midwife, judge, magistrate, or minister:

OFFICE OF SECRETARY STATE BOARD OF HEALTH,
TOPEKA, KANSAS, November 25, 1885.

DEAR DOCTOR: As county health officer, through this circular, or your county papers, or both, you will please notify every physician or midwife in your county, that they are required by the State Board of Health law to return all certificates of births, still-births and deaths to the county health officer, instead of the county clerk; and notify every minister, judge and justice of the peace in your county, that the law requires them to return all

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marrige certificates to the county health officer, instead of the county clerk. All of said certificates must be returned as above directed from and after the date this notice is received. Very truly,

J. W. REDDEN, M. D.,
Secretary State Board Health.

You will notice from the general tone of the reports of the county health officers, that everything indicates a willingness and readiness to observe and enforce the law of vital statistics, and that this department promises a creditable and satisfactory showing for the incoming year.

At this time of the year it is natural that physicians should be on the alert, and parents apprehensive in reference to the introduction and spread of those dreaded and fatal contagious maladies, especially small-pox, scarlet fever, diphtheria, cholera, and yellow fever. You will notice from the reports of two of the county health officers that small-pox has made its appearance in two counties, (one in the eastern part of the State and the other in the interior,) although they think they have it quarantined, and will stamp it out. I have also recently learned from the city authorities that a family in the western part of the city of Topeka made an effort to secrete a case of scarlet fever, so that the other children (five in number) could attend the different schools; but it was discovered, and is now under surveillance—not, however, until it had done mischief in showing itself in a few other families in the near vicinity. We cannot, therefore, be too circumspect prudent, or rigid.

HOW SMALL-POX HAS BEEN INTRODUCED INTO THE UNITED STATES FROM CANADA.

About August 6, 1885, a French-Canadian family, consisting of the mother and six children, passed through Port Huron from Montreal to Marinette, Wisconsin. They met with no detention at Port Huron, or at any other point through Michigan, Illinois, or Wisconsin, as it was before the present system of inspection was established. From this family resulted eighteen cases of small-pox, with four deaths. The outbreak was promptly suppressed by the health authorities at Marinette.

Another French family, named Picher, left their home, near Montreal, September 22, 1885, were detained at Detroit, "examined, fumigated, and vaccinated." The family consisted of father, mother, and seven children. They passed Detroit September 23, and reached their destination, near Coleman, in the township of Peshtigo, Wisconsin, on the night of September 24. About a week after their arrival in Wisconsin, four of the children were taken sick with small-pox, but it was not discovered until a large number had been exposed. J. J. Sherman, M. D., health officer at Marinette, Wisconsin, writes that "the vaccination at Detroit was complete and effective on three, and greatly modified the effect on the other four."

Dr. Sherman, writing October 30, 1885, in regard to these cases, says: "Of course it does the immigrant good to vaccinate, and no doubt prevents

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the spread of small-pox altogether in many cases. Only I do think that immigrants from infected districts should be held, when they have not been vaccinated or had small-pox, until the vaccination gives evidence of working, or until it was morally certain that the disease was not in the incubative stage, and, if possible, notices forwarded to health officers of the towns to which they were going, that they might be kept under surveillance until all danger of contagion was past."

During October the epidemic in Montreal caused 1,530 deaths. The newspapers have teemed with the horrors occasioned by the pestilence. The cost to the public treasury counts by the hundreds of thousands. The loss to commerce and individual property runs up to millions. All could have been prevented by expending a few thousands, as shown by the illustrations given a century since. "Stupidity! Stupidity!" is the general exclamation, yet a portion of Kansas is at this very moment sunk in equal stupidity. Beyond doubt a large portion of our people would fall victims to this loathsome disease if once fairly under way in some parts of Kansas, because they are not protected by vaccination. Hence we see the importance of prompt, systematic and thorough vaccination.

With the New Orleans physician, I emphatically agree that the existence of epidemic cholera in western Europe is a standing menace to America. The terrible events in Spain, during the summer just ended, the recent violent outbreaks of cholera in widely-separated portions of the Italian peninsula, and the not less significant alarm in Paris and elsewhere in France, remind one most vividly of the steady march of this Asiatic pest when first it entered upon a grand career of conquest in the West more than fifty years since. Hence, nowhere in America will there be any relaxation of vigilance. Rather will the precautions during the coming year be more perfect than ever.

Small-pox epidemics in Kansas have caused much uneasiness, and subjected many localities to great loss in business and to much expenditure of money. As far as known to-day, there is not a case within our limits. Yet right now is the time for the medical profession and for sanitary authorities to institute everywhere in Kansas systematic vaccination, and to push the work until every inhabitant of this State is protected. Vaccination is not a trivial process. For success, pure vaccine matter is required, and careful attention, both to the operation and its progress. In time of epidemic fright, half the vaccinations are worthless, and it is gross folly to await such times before commencing systematic work by skillful physicians.

In New England, New York, and all along the northwestern frontier, the keenest alarm is expressed because of the unprecedented epidemic in Montreal. It is no time for Kansas to go to sleep.

The interesting statements of the results in Rio de Janeiro from inoculation for yellow fever, is causing thorough scientific investigation. Let us indulge the hope that it may prove the great eradicator or modifier of yellow fever, equally as reliable and efficient as vaccination is for small-pox.

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FACTS OF REGISTRATION.

The registration reports, allowing the general average for the other counties, where the county health officers have not yet sent in their annual reports, will show that about one-third of the physicians and midwives practicing in this State have failed to register up to the present date.

In reference to the registration, I thought the following statistics might be of value, and appropriate:

Lawyers, Ministers and Doctors in the United States—W. W. H. Russell states that in 1850 there were in the United States 23,939 lawyers, 25,842 clergymen, and 40,364 doctors. In 1880 there were 64,137 lawyers, 64,698 clergymen, and 85,671 doctors; in all, 214,506. In thirty years, from 1850 to 1880, the professions more than doubled in membership. In 1850 there was one lawyer to 964 people, one clergyman to 864, and one doctor to 569. In 1880, one lawyer to every 782 people, one clergyman to every 775, and one doctor to every 585. Of the 64,137 lawyers in 1880, there were 75 women; of the 64,698 clergymen, there were 165 women, and of the 85,671 doctors there were 2,432 women. Of the 214,616 professional workers, 21,212 were over 60 years of age. (N. M. Med. Journal, Aug. 22.)

I herewith submit the following questions for the decision of the Board:

First—In case of death or still-birth where there is no physician or midwife in attendance, who should make the report to the county health officer?

Second—At what age should cases of premature labor be reported to the county health officer?

Third—Should not the Secretary be authorized to request all county health officers to make weekly, monthly or quarterly reports of deaths from contagious or infectious diseases, either of epidemic or endemic type; and upon uniform blanks furnished by the State Board of Health to the county health officer for that purpose?

I would suggest the following recommendations for the consideration of the Board:

First—That such changes be made in our statutes as will authorize the local boards of health and the school boards to make it obligatory upon them to enforce compulsory vaccination, and also to establish quarantine, to control and regulate contagious or infectious diseases, whenever in their judgment the public health and security demand it.

Second—To secure such necessary amendments to our health laws as will confer upon the State and local boards of health the executive power and authority to enforce its own rules and regulations.

Third—That the law be so amended as to make a violation of its provisions a misdemeanor.

Fourth—That a penalty should be provided by enactment, for the non-registration of physicians.

Fifth—That additional amendments be secured so as to confer specific power upon the State and local boards of health to decide what are public

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nuisances, and the authority to abate or remove them. Also, authority to regulate the drainage, ventilation and heating of public buildings.

I would also call the attention of the Board to the following suggestive communication just received from the civil engineer of the city of Topeka:

TOPEKA, KANSAS, Dec. 15, 1885.

Dr. Redden—DEAR SIR: Would it be advisable to legislate any on the subject of house drainage and plumbing; or only to provide for the power to be conferred on municipal bodies and they legislate by ordinance? Public sewers may be ever so efficiently built, and fail of their ultimate purpose by improper house service. Yours truly,

GEO. T. NEALLY, *City Engineer.*

The following brief report of an endemic of scarlet fever and diphtheria, in Johnson county, is worthy of consideration:

OLATHE, KANSAS, October 11, 1885.

J. W. Redden, M. D.—DEAR DOCTOR: I visited those reported cases of scarlet fever and diphtheria. The case of diphtheria was located about 10 miles from here. Upon examination I found it to be a severe case of catarrhal diphtheria, with some tendency to invasion of the nasal passages. There are several children in the family, all of whom have been more or less exposed. There is a school house opposite the way. I had all precautions used that were possible. From there I visited a town called Aubrey, and found there had been six mild cases of scarlatina. The convalescing case I visited. I found desquamation taking place, some dropsy of the abdomen; otherwise the child seemed to be doing well. They were not taking the precautions they should have done, but I left strict orders to keep even the mildest cases out of school a proper period of time. Respectfully,

R. A. WILLIAMS, *County Health Officer.*

Taking a restrospective view of the foundation laid, and of the future outlook, I think the Kansas State Board of Health are to be congratulated upon what has been already accomplished, and have every reason to go forward in the vigorous and efficient execution of all necessary sanitary reforms, that have for their object the alleviation of the "ills that flesh is heir to," and the prevention of many sad maladies that so greatly mar the happiness of the human race. Respectfully submitted.

J. W. REDDEN, *Secretary.*

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FINANCIAL AND PROPERTY STATEMENTS.

List of books and publications received, and placed in the book case of the Board, during the year 1885:

Four volumes of National Board of Health Reports.
Two volumes of Reports of Health Officer of District of Columbia.
Three volumes of Reports of Board of Health of Ontario, Canada.
Seven volumes of Reports of Wisconsin State Board of Health.
Two volumes of Reports of Connecticut State Board of Health.
Four volumes of Reports of Massachusetts State Board of Health.
Eleven volumes of Reports of Michigan State Board of Health.
Three volumes of Reports of Iowa State Board of Health.
Five volumes of Reports of Illinois State Board of Health.
Two volumes of Reports of Indiana State Board of Health.
Two volumes of Reports of California State Board of Health.
Four volumes of Reports of New Hampshire State Board of Health.
One volume Vaccination Report of New Hampshire State Board of Health.
Two volumes of Reports of Tennessee State Board of Health.
One volume of Report of West Virginia State Board of Health.
One volume of Report of Minnesota State Board of Health.
One volume of Report of Louisiana State Board of Health.
Three volumes of Reports of Kentucky State Board of Health.
Three volumes of Reports of Mississippi State Board of Health.
One volume Laws of Kansas, 1885.
One volume Kansas Revised Statutes. (Lost—supposed to be stolen.)

Report of the Secretary relative to the property, etc., belonging to the office of the Secretary of the State Board of Health, December, 1885:

One letter press.
One letter copying book.
One letter-press stand.
One pair small scales (for postal matter).
One waste basket.
One gas drop light.
One ink stand.
Two letter filing cases.
One record book "A."
One journal book "A."
One invoice book.
One scrap book.
Six cuspidors.
One wash stand.
One wash bowl and pitcher.
One door mat.
One soft-coal base-burner.
One hatchet.
One shovel.
Two coal buckets.
One upright desk.
One small revolving book case.
One Brussels carpet.
One paper cutter.
One paper weight.
One eraser.
One water bowl and brush (for press copying).
One soap dish.
One looking-glass.
Two glass tumblers.
One slop bucket.
One door scraper.

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EXPENDITURES FOR MEETINGS OF THE BOARD.

1885.—April 9–10.	
C. H. Guibor, expenses of attendance at first quarterly meeting	$14 60
G. H. T. Johnson, " " " " "	5 62
D. Surber, " " " " "	4 00
D. W. Stormont, " " " " "	——
J. Milton Welch, " " " " "	13 80
H. S. Roberts, " " " " "	6 35
J. W. Jenny, " " " " "	11 10
W. L. Schenck, " " " " "	6 00
T. A. Wright, " " " " "	11 66
June 11–12.	
C. H. Guibor, expenses of attendance at first quarterly meeting	14 60
G. H. T. Johnson, " " " " "	5 77
D. Surber, " " " " "	4 00
D. W. Stormont, " " " " "	——
J. Milton Welch, " " " " "	13 80
H. S. Roberts, " " " " "	7 85
J. W. Jenny, " " " " "	11 10
W. L. Schenck, " " " " "	6 00
September 10–11.	
G. H. T. Johnson, expenses of attendance at first quarterly meeting	5 27
D. Surber, " " " " "	4 00
D. W. Stormont, " " " " "	——
J. Milton Welch, " " " " "	13 80
J. W. Jenny, " " " " "	13 10
December 15–16.	
G. H. T. Johnson, expenses of attendance at first quarterly meeting	7 52
D. Surber, " " " " "	2 50
D. W. Stormont, " " " " "	——
J. Milton Welch, " " " " "	13 80
H. S. Roberts, " " " " "	4 60
J. W. Jenny, " " " " "	13 10
W. L. Schenck, " " " " "	6 00
Total	$218 94

SALARY OF SECRETARY, AND CONTINGENT EXPENSES.

Date.	*No. of voucher.*	*To whom paid.*	*Amount*
1885.			
May 31		Paid for postage	$4 02
" 31		Express charges on State reports	1 25
June 30		Paid for postage	10 78
" 30		Express charges on State reports	3 95
" 30		Varnishing furniture	2 00
July 31		Clerk hire for copying	10 00
" 31		State Board of Health signs	10 00
" 31		Gas bill for June and July	1 15
" 31		Postage	8 50
August 31		Clerk hire	9 50
" 31		Postage	8 65
" 31		Gas bill for August	85
September 12	1	J. K. Hudson, 100 copies *Daily Capital* with notices of State Board of Health for distribution	5 00
September 12	2	John Mileham, postmaster, postage stamps and wrappers	2 00
" 29	3	C. L. Traver, express agent, express charges on blanks	1 00
" 30	4	John Mileham, postmaster, postage	1 50
October 8	5	John Mileham, postmaster, postage and postals	1 00
" 22	6	John Mileham, postmaster, postage and stamps	2 00
" 24	7	Clugston & Cooke, coal for office	3 00
" 29	8	John Mileham, postmaster, postage stamps	1 50
" 28	9	W. A. L. Thompson, coal bucket and flue cap	1 35
" 30	10	J. J. Floreth, stovepipe and isinglass for stove	7 45
November 7	11	John Mileham, postmaster, postage stamps	1 50
" 11	12	Wells, Fargo & Co. Express, express on blanks	75
" 11	13	Wells, Fargo & Co., express on blanks	1 65

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FINANCIAL STATEMENT—CONCLUDED.

Date.	No. of voucher...	To whom paid.	Amount.
1885.			
October 1.....	14	John Williams, janitor at office from June 1st to October 4th.....	$10 00
November 17.....	15	John Mileham, postmaster, postage stamps and wrappers.....	1 50
" 21.....	16	John Mileham, postmaster, postage stamps.....	2 00
" 22.....	17	Grace M. Price, clerk hire, copying records and reports.....	6 00
" 28.....	18	C. L. Traver, express agent, express charges on printed blanks.....	1 00
" 28.....	19	C. L. Traver, express agent, express on printed blanks.....	60
" 28.....	20	C. L. Traver, express agent, express on printed blanks.....	75
December 2.....	21	John Mileham, postmaster, postage stamps and wrappers.....	2 00
" 5.....	22	John Mileham, postmaster, postage stamps.....	50
" 5.....	23	C. L. Traver, express agent, express on printed blanks.....	2 00
" 14.....	24	Gas Company, gas for office, September, October, and November.....	3 50
" 15.....	25	John Williams, janitor for October, November, and December.....	10 50
" 15.....	26	Grace M. Price, for copying registration and reports.....	9 00
" 15.....	27	Bessie Hitt, for copying minutes, reports, papers, and use of typewriter for November and December.....	45 00
December 17.....	28	Western Union Telegraph Co., telegrams.....	75
" 17.....	29	J. K. Hudson, 100 copies of *Daily Capital* of December —, containing proceedings State Board of Health.....	5 00
December 18.....	30	John Mileham, postmaster, postage stamps, paper wrappers.....	2 00
" 31.....	31	Grace M. Price, copying reports and records.....	8 25
" 31.....	32	A. T. Wagoner, postage stamps.....	1 00
" 31.....	33	Coke and Gas Company, gas for office for December.....	1 60
" 31.....	34	John Mileham, postmaster, postage stamps.....	1 00
1886.			
January 9.....	35	Grace M. Price, copying reports and records.....	9 00
" 9.....	36	John Mileham, postmaster, postage stamps.....	2 00
			$225 31
		Total expenses of the Members, attending the sessions of the Board, as per itemized statement above.....	218 94
		Total.....	$444 25

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REGISTRATION OF PHYSICIANS AND MIDWIVES.

The following is a tabulated list of the registration of the physicians and midwives of the fifty-six counties which have reported up to the present date, showing the total registration, and the number representing each school of medicine, in each county:

County.	*Number of physicians registered...*	*Regular.....*	*Eclectic.....*	*Homeopathic...*	*Others.....*	*Midwives.....*
Allen	23	18	3	2	...	...
Anderson	31	21	7	1	1	1
Atchison	46	29	5	7	3	2
Barber	13	11	2	...	...	...
Brown	21	16	2	3	...	...
Butler	35	19	9	5	2	...
Chase	21	14	6	...	...	1
Clay	19	11	3	4	1	...
Cloud	32	20	3	6	1	2
Coffey	32	21	10	1	...	...
Cowley	73	47	14	5	4	3
Crawford	66	49	11	5	...	1
Decatur	9	8	1	...	...	...
Douglas	59	33	7	7	5	7
Franklin	17	15	2	...	...	...
Greenwood	27	20	4	3	...	...
Harper	18	13	1	3	...	1
Harvey	36	25	4	6	...	1
Hodgeman	4	4	...	...	...	...
Jackson	20	15	1	2	2	...
Jefferson	35	25	5	4	1	...
Jewell	25	15	6	3	1	...
Johnson	37	26	5	2	3	1
Labette	73	51	8	7	5	2
Linn	35	24	9	...	2	...
Lyon	37	30	3	4	...	...
Marion	31	15	6	5	2	3
Marshall	45	29	9	6	1	...
McPherson	33	24	3	4	2	...
Miami	30	18	8	3	1	...
Mitchell	29	11	5	3	10	...
Montgomery	43	27	7	3	6	...
Morris	24	21	2	...	1	...
Nemaha	31	24	5	2	...	...
Ness	4	2	1	...	1	...
Norton	14	8	...	1	5	...
Osage	53	35	12	4	2	...
Osborne	25	17	1	1	3	3
Phillips	17	10	4	...	1	2
Pottawatomie	37	30	3	1	1	2
Pratt	9	5	1	...	3	...
Rawlins	4	2	1	...	1	...
Republic	27	15	8	2	2	...
Rice	26	17	4	1	4	...
Riley	6	3	1	1	1	...
Rooks	30	14	6	...	10	...
Russell	11	7	2	1	...	1
Saline	25	16	4	3	1	1
Sedgwick	74	54	9	9	2	...
Shawnee	107	63	15	17	5	7
Stafford	18	8	5	1	...	4
Wabaunsee	14	11	3	...	...	...
Washington	17	7	7	2	1	...
Wilson	29	20	7	2	...	...
Woodson	19	14	5	...	...	...
Wyandotte	24	17	4	3	...	...
Total	1,702	1,124	280	155	98	45

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REPORTS OF LOCAL HEALTH OFFICERS.

The following is the list of counties from which annual reports of the county health officers have been received. Said reports are herewith submitted; many of them are thorough and interesting:

Allen.	Decatur.	Linn.	Osborne.	Shawnee.
Anderson.	Douglas.	Marion.	Phillips.	Sheridan.
Atchison.	Greenwood.	Marshall.	Pottawatomie.	Sedgwick.
Brown.	Harper.	McPherson.	Pratt.	Stafford.
Butler.	Harvey.	Miami.	Republic.	Sumner.
Chase.	Hodgeman.	Mitchell.	Rice.	Wabaunsee.
Cloud.	Jackson.	Montgomery.	Riley.	Washington.
Coffey.	Jefferson.	Morris.	Rooks.	Wilson.
Cowley.	Jewell.	Nemaha.	Russell.	Woodson.
Clay.	Johnson.	Norton.	Saline.	Wyandotte.
Crawford.	Labette.	Osage.		

COUNTY REPORTS.

MORAN, ALLEN COUNTY, KAS., Dec. 4, 1885.

To the Kansas State Board of Health: I beg leave to submit the following report. The health of the county is good, there being very little sickness, and no epidemic or endemic. The rule in regard to vaccination is hardly observed at all. Thus far, twenty-one physicians and two midwives have registered, as per correct copy of registration inclosed; and as nearly as I have been able to ascertain, there are eleven physicians and eleven midwives who have not registered, although I have notified each one by mail whose address I could learn, and have had the notice published in each of the county papers. There are 5,322 children of school age in the county, but I have failed to learn anything about the proportion who have been previously vaccinated, or the number never vaccinated. The county commissioners regard the protection of the public against infectious diseases and epidemics as being of much greater importance than the registration of physicians and midwives, and making thorough and accurate returns of marriages, births, deaths, &c. I do not think that all those who are authorized to solemnize marriages have received the blanks; for the county commissioners directed me not to send them by mail, but to place a part of them in the office of the county clerk, and the rest in my office, and advertise to that effect, which I did, and have distributed them as far as possible.

This county has suffered from neither epidemic nor endemic, so far as I can learn, except that during July and August there were ten or twelve cases of continued fever of a typhoid type, occurring in a strip of country two miles long by one mile wide in Marmaton township—no deaths occurring;

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and in November eight or ten cases of ulcerative tonsilitis occurred in a region about four miles square in Osage township.

The people generally seem to think the rules and regulations good, in a general way, but will not take the trouble to observe them until small-pox or cholera has secured a foothold in the county, or at any rate in the State. I would recommend most decidedly that these rules and regulations be brought before the Legislature for their indorsement, and so making them compulsory; for until this is done, we are at the mercy of the most ignorant and prejudiced class in the community.

Respectfully submitted. J. E. JEWELL, *Local Health Officer.*

GARNETT, ANDERSON COUNTY, KAS., Dec. 3, 1885.

J. W. Redden, M. D., Secretary Kansas State Board of Health—DEAR SIR: Below is my report as nearly complete as I can give it under the existing circumstances.

The county superintendent received no circular from the State Superintendent; hence he hasn't taken any interest in vaccination, and consequently it has been enforced only in the public schools of the city of Garnett.

I think every physician and midwife in the county has registered, although a few have not yet received blanks for the return of births, deaths, &c., but those who have are sending in their reports regularly.

There are 5,000 pupils between the ages of 5 and 21 years in the county. There have been about 200 vaccinated since the rule was adopted. About 4,300 who were previously vaccinated, and about 500 who have never been vaccinated.

There has been no epidemic with the exception of pertussis in a mild form, extending over the whole county.

As a general rule, the people of the county are disposed to observe the rules of the State Board; but I don't receive much encouragement from the board of commissioners, from the fact that two of them, being farmers, do not take any interest. The one living in town sees the necessity, and is disposed to aid in the advancement of sanitary work.

As to the work accomplished as health officer, I inclose you my report to the commissioners, which gives it in full except the distribution of blanks to physicians, justices, ministers, &c., whom I have mostly supplied.

I shall be glad at any time to render you any service that I can.

Yours truly, A. L. BURSON, M.D., *Health Officer.*

GARNETT, KAS., Oct. 1, 1885.

To the Commissioners of Anderson County—GENTS: Below you will find a report of the sanitary measures I have accomplished during the months of July, August, and September; and there are yet a great many things to be done to put our city and county in a clean and healthy condition, so as to protect the public health from the ravages of infectious and contagious diseases. I hope you may see how important it is for me to have your in-

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dorsement and hearty coöperation in this matter of sanitary work, for there is scarcely any doubt but we will have an epidemic of Asiatic cholera in the United States next year; but by strict enforcement of our sanitary measures we can, without any question, materially modify its fatal results, if not entirely protect our community from its approach.

The Secretary of the State Board of Health urges that the various county health officers put forth every effort to perfect our sanitary conditions, and it is strictly essential to have the coöperation of the commissioners. A great many wells and cisterns in the county are in a condition conducive to disease, and especially of the typhoid and typho-malarial types, from the fact that privy vaults are located in too close proximity, and the careless manner in which the slops and offal from the kitchen are thrown out. Your earnest consideration of this matter, with any suggestions you may offer, will materially aid me in elevating the standard of public health, and in the end prove to be economy.

REPORT.

Hutchinson and Stevenson's privy inspected, and ordered cleaned and disinfected. Faust and McLaughlin's privy inspected, ordered cleaned and disinfected. Pilkenton and Hannum's privy inspected, ordered cleaned and disinfected. Bronston and Brigham's back yard and privy inspected, ordered rubbish removed, and privy cleaned and disinfected. Pollard and Purce's privy inspected, ordered cleaned and disinfected. C. W. DeWolf and Son's privy inspected, ordered disinfected. Rogers and Newton's privy inspected, and ordered disinfected. Garnett Mercantile Co.'s privy inspected, ordered cleaned and disinfected. Wm. Groll's back premises and privy inspected, and ordered rubbish removed, and privy cleaned and disinfected. T. O. Robertson's back premises and privy inspected, ordered cleaned and disinfected. Weeks Bros.' privy inspected, and ordered cleaned and disinfected. C. Routh's (restaurant) back premises and privy inspected, ordered slop and rubbish removed, privy cleaned and disinfected, and drain made, and cover for slop barrel. Mrs. Fabricious' (store room) privy inspected, ordered cleaned and disinfected. First National Bank and C. H. Griffin's privy inspected, ordered cleaned and disinfected. Wm. Wagstaff's two cellars and privy inspected, ordered drain for cellars repaired and disinfected, and privy cleaned and disinfected. M. Auspitz's cellar inspected, ordered disinfected. Blum Bros.' slaughter-house inspected, and found in horrible condition; ordered removal of offal, yards cleaned and floor laid, house inside thoroughly cleaned and disinfected, and walls whitewashed. W. H. Mellen's open privy vault inspected, and ordered filled. W. C. Hollingshead's pig pen inspected, ordered floor laid and pen disinfected. Anderson county court house privy inspected, ordered new vault made, water-tight stone laid in cement, privy moved, and old vault filled. Drain from the basement of poor-farm and cistern inspected, ordered new drain and suggested a well sunk, which has been done. St. James

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Hotel privy inspected, ordered cleaned and disinfected. Billiard hall privy inspected, ordered cleaned and disinfected. H. French's privy inspected, ordered disinfected. Mr. McDonald's pig pen inspected, ordered cleaned and disinfected, and floor laid. W. Huff's privy, with no vault, ordered removed. City of Garnett, mud-hole on Fourth avenue, ordered drained. Frank Herbert's vacant lot inspected, ordered dead animals removed. W. W. Kirkpatrick's hog pen ordered cleaned and disinfected, and floor laid. S. Kaufman's (Ohio House) privy inspected, ordered cleaned and disinfected. G. McAfee's (Fourth Avenue Hotel) privy vaults inspected, found in very bad condition; notified proprietor that unless it be cleaned and disinfected within fifteen days, proceedings would be commenced to declare it a nuisance; notice was complied with. Anderson county's jail inspected, ordered cleaned and disinfected; suggestion to burn clothing and purchase new complied with. Laundry's back premises inspected, ordered to stop throwing suds at back door and carry away. Mrs. McKay ordered to quit throwing slops and excrement out at back door. Garnett city drain on Fifth and Sixth avenues ordered cleaned and repaired. Thos. Brunson's (Commercial House) privy removed to new vault and old one filled, and pig pen floored.

COLONY, KANSAS.—Smith's slaughter house ordered thoroughly cleaned and disinfected; to be moved this fall. Hotel cellar ordered drained and disinfected, and privy vault cleaned and disinfected. Mud-hole or basin in town ordered drained. Cramer's hog yard ordered cleaned and repaired, and privy vault cleaned and disinfected.

MT. IDA.—Large pond found in a condition very detrimental to public health, and ordered drained. Inspected Carey & Andrews' new slaughter house, and found it in excellent condition.

Respectfully, A. L. BURSON, M. D., *Health Officer.*

ATCHISON, KANSAS, Dec. 4, 1885.

J. W. Redden, M. D., Topeka, Kansas—DEAR DOCTOR: I mailed you today the register of physicians and midwives. All persons practicing medicine in the county except from three to five have registered. Not less than ten or twelve midwives have not registered. From the register you will see that the law of 1870 is of little protection. Persons have registered who have not practiced the number of years the law requires, but they marked ten or more years to evade the law. In other instances, the diplomas are not worth a penny to any man but a quack (that of Gress). The law is a protection to charlatans driven from other States by more effectual legislation. That ten-year clause in the law should be expunged.

The registration of marriages, deaths, births, &c., falls short. The good preachers have not reported a single marriage.

I have not received blanks for registration of forms of disease prevalent in the county, nor blank forms for transporting dead bodies, or instructions for coroner.

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The health of Atchison county has been good during the past year. No epidemics have prevailed since the act regulating the practice of medicine became a law. But two cases of contagious diseases were reported to the local board—one of scarlet fever, and one of diphtheria. It is impossible for me to make a complete report, as the registration of births, deaths and marriages is only partial.

The commissioners have complied with the law, and are willing to follow out its requirements; but it seems difficult to get it in working order. I hope by next month to have it generally understood, and in working condition.

No report to make on vaccination, as no attention has been paid to the rule.

Births.		*Deaths.*	
For September	8	For October	2
October	27	November	7
November	20	Total	9
Total	55		

CAUSES.—Pneumonia, 2; membranous croup, 1; typho-malarial fever, 1; want of development, 1; spasms, 1; old age, 1; rheumatism, 2.

VACCINATION.—No report.

W. A. FURGUSON, M.D., *Health Officer.*

HIAWATHA, BROWN COUNTY, KAS., December 6, 1885.

To the Kansas State Board of Health, Dr. J. W. Redden, Secretary, Topeka, Kansas: The progress made by the local board of health of Brown county, up to this date, will not permit me to make as full and satisfactory report as I would like; but I submit the following, giving the progress made and steps taken toward carrying into effect the rules and regulations adopted and advised by the State Board of Health.

I received my appointment at a late date, but as soon as appointed immediately complied with the law, and soon received in part instructions and printed matter pertaining to the health office. Notified the physicians of the county by circular letters furnished by the State Board, calling their attention to rule 24, requiring the physicians and midwives practicing in the county to register. The registration I think is about complete. After they had registered I furnished the physicians with the necessary blanks provided by the State Board for their use. This was as far as I could carry out my instructions until a meeting of the county commissioners was called. I then suggested to the chairman of the county commissioners that a special meeting be called for the purpose of transacting such business as would properly come before them as a local board of health. A special meeting of the board was convened November 27, at which time the rules and regulations of the State Board of Health were adopted at my suggestion. A resolution was passed earnestly urging upon the county school superintendent and school officers of the county the necessity of having all the children attending

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the public school vaccinated at once, and so far as possible, carry into effect the rules and regulations as adopted by the State Board of Health.

I interviewed the county school superintendent, and he will take measures to bring the subject of vaccination before the school officers at an early date. After this has been done, I feel that the rules and regulations of the State Board will be complied with.

The health of the county is quite good; no epidemic or contagious disease prevailing.

Physicians registered up to Dec. 3	21
Physicians failed (will register)	1
Midwives registered	0
School children of school age	5,796
School children enrolled	4,845
Ministers (approximate)	16
Probate Judge	1
Justice of the Peace	22

W. W. NYE, M.D., *Health Officer.*

EL DORADO, BUTLER COUNTY, KAS., Dec. 10, 1885.

J. W. Redden, M.D., Topeka, Kansas—DEAR DOCTOR: I herewith transmit all the report I am able to make at this time. I have tried my best to have a full report by publication and personal letters; but the meager report I make will convince you that my efforts have not been crowned with success. I hope, however, hereafter to be able to make a better showing from this part of the country. I have been at a loss to know just how to make a report; if I have not done it right, please tell me how it should be done, as I have had no instructions on this point.

Our county has been exceedingly healthy this year, no disease of an epidemic or endemic nature having been reported up to this date.

I have not been able to obtain a report from the teachers of the county, and therefore cannot report the number of school children; but from the best information I am able to get, I think this county has been pretty thoroughly vaccinated. Respectfully,

J. A. MCKINZIE, M.D., *Health Officer.*

COTTONWOOD FALLS, CHASE COUNTY, Jan. 1, 1886.

J. W. Redden, Secretary State Board of Health, Topeka, Kansas—DEAR SIR: I have the honor to make this my first report to you as health officer of Chase county. The delay is in consequence of my inability to do business, from a broken arm.

The physicians and midwives have registered without any general complaint, being apparently satisfied with the laws.

The vaccine rule is not observed in this county, nor do I think it can be enforced unless there is a statute compelling it.

There is not now, nor has there been, any epidemic or endemic disease in

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this county for the past year. The general health and sanitary condition is much better than for many years before.

Number physicians registered	18
Number physicians not registered	2
Number graduates	14
Non-graduates	4
Number graduates from regular school	14
Number graduates from eclectic school	4
Average number physicians in practice	14¾
Average number physicians in practice in Kansas	10½
Number of midwives registered	3
Number of midwives not registered	3

I have the honor to subscribe myself your obedient servant,

C. E. HAIT, M.D., *Health Officer.*

CLAY CENTER, CLAY COUNTY, KAS., Dec. 5, 1885.

J. W. Redden, M. D., Topeka, Kansas: I inclose list of registered physicians of Clay county.

1. The health of the county is excellent.

2. The vaccination rule has not been observed at all. The registration rule has been disregarded by about half the physicians of the county, more I think, on account of not being at the county seat, than from stubbornness.

3. The number of physicians and midwives not registered, about 20.

4. Approximate number of school children in Clay county, 3,500.

5. No epidemic since January 1, 1885.

6. Malarial fever (remittent) has prevailed to a greater extent than any other disease, the average cases lasting about two weeks before convalescence sets in. We have had a few reported cases of scarlet fever, but most of them have been of a very mild form; but two deaths, and those April 26, 1885. Some cases reported as scarlet fever were only out of school three days, showing that no one believed the report true. Scarlet fever and small-pox are high-sounding terms to most physicians.

7. The people are disposed to comply with regulations and resolutions of the State Board except in reference to vaccination.

8. The county commissioners are ready and willing to do what is required of them in reference to sanitary work.

9. My duties of county health officer have been to carry out your instructions as far as possible, and those of the local board. We have endeavored to stop the throwing of dead animals in the running streams of our county.

Suggestion 1: Recommend the passage of a law that will enable cities and villages to control slaughter houses, etc., that are in town, and yet just out of the city limits. We have three slaughter houses and two feed lots in our suburbs that the council can't reach, which are nuisances.

Suggestion 2: Recommend the boards of health of cities to consist of one member instead of three. My theory is, one member of a board of health will do ten times the work for a city that three will. If there is but one,

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we can say what we have to say when we meet him, and not be referred to the meeting of the board, which never meets. Our board of health has never been worth a cent to the city, and I claim for this reason. I have been a member of it myself, and it was no better then than now. This, however, may belong to the city council instead of the Legislature; and yet I think the rule holds with other cities as well as our own. We have a city board of health, with J. P. Stewart, M.D., as president.

Suggestion 3: Have no rules and regulations that can't be carried out by law. I think the vaccination regulation, as it can't be enforced, weakens the regulations as a whole.

Hope to hear from you as to what my duties are in reference to those who have not registered. What are the duties of the county clerk in reference to his work?

Shall I take possession of the reports of deaths, &c., for October and November? With respect, S. E. REYNOLDS, *Health Officer.*

CONCORDIA, CLOUD COUNTY, KAS., Dec. 9, 1885.

J. W. Redden, M.D.—DEAR DOCTOR: I have just received circular letters from you requiring local health officers to send in their reports by December 6th, 1885. That will be impossible for me, as I have received all my supplies since December 1st, and have not yet got them distributed. Now the question is, shall I have that requirement and begin business with the beginning of the year 1886, and in the meantime get the blanks and instructions fully distributed? This will be all that I can possibly do up to the first of January. I will do my utmost to get this county thoroughly organized by the first of the year in the rules and regulations of the State Board, and acquainted with the law on the matter, that everything may work smoothly hereafter. S. D. HALL, *Health Officer.*

WINFIELD, COWLEY COUNTY, KAS., Dec. 11, 1885.

J. W. Redden, M.D., Secretary State Board of Health, Topeka, Kansas—DEAR DOCTOR: I send you by mail to-day a correct copy of the registration of physicians and midwives of Cowley county. There are but three or four now practicing in this county who have not registered.

The health of the county has been good during the past year, and continues so at the present. There has been less sickness throughout the entire county during the year 1885, than at any time during the last seven years. There have been some cases of typhoid fever during the fall months, but not as many by eighty per cent. as during the summer and fall of 1884. Diphtheria was first seen in Cowley county in the fall of 1884, and became quite prevalent during the spring of the present year. An occasional case was observed during the entire summer, until the present time. It is now rapidly on the increase, and cases are reported from all parts of the county. It seems to have been confined to Winfield, and the section of county west of Winfield between the Walnut and Arkansas rivers, until the past sixty

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days. It is of a mild form; but few cases have died (not to exceed, six I presume) from sepsis or any cause or complication, except laryngial croup. The above-mentioned complication is quite common, and is of course necessarily very fatal.

The registration rule, as you will see from the above and the copy, has been well observed.

The vaccination of school children is now going on. I was obliged to await the movements of the several school boards, in various cities and school districts. They (the school boards) have been disposed to enforce your rule, but neglected to do so at once, and then were inclined to extend the time. In the country, many families live a long distance from a physician, and the boards wished to give them ample time to vaccinate the children before excluding them from the schools. From the present outlook I think the first of January, or at most the first of February, will show that the rule has been enforced in every school in the county. There are ten thousand and fifty school children in the county. Over sixteen hundred in the city of Winfield. The rule has been enforced in Winfield, and on Monday next all children without a certificate will be excluded. I know of but one family in the city that has refused to comply with the law. I cannot secure the return of vaccination certificates in time to aid me in this report in the city, and it would be premature to attempt anything of the kind from the county at the present writing.

The County Commissioners adopted the rules of the State Board of Health, and instructed me to enforce them so far as in my judgment seemed advisable.

The physicians do not seem inclined to report birth and deaths as occuring in their practice, and this is true of the *regular profession* more than of the other fellows, much to my surprise. There have been reported thus far twenty-seven deaths, sixty births, and three still-births.

No effort has been made to enforce the medical-practice act of 1870. I do not think I would be sustained, if I should make any move in that direction at present.

Please send me twenty-five blank books for each return to be made, viz., twenty-five for births, twenty-five for deaths, twenty-five for still-births, and twenty-five packages of blank certificates for vaccination.

I hope and believe that the work will be in more complete running order before the time arrives for another report from me, and that I can then make a showing that will be more satisfactory to you and more creditable to myself. Very truly yours, GEO. EMERSON, *Health Officer.*

GIRARD, CRAWFORD COUNTY, KAS., Dec. 1, 1885.

J. W. Redden, Secretary of the State Board of Health, Topeka, Kansas—DEAR SIR: I herewith submit my report as health officer of Crawford county for the present year.

Soon after my appointment a meeting of the county commissioners was

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held, and we organized the county board of health, as directed by law; whereupon it was resolved to carry out the rules, regulations and resolutions adopted by the State Board of Health. We had them published in the Girard *Herald*, the official county paper, and used all other means in our power to inform the people of the things most needful to promote the health of our county.

We have sixty-five physicians and one midwife registered. This includes all the physicians except one, but I am not able to give the exact number of so-called midwives who have failed to register—some for the reason they could not practice under the present law, and it is my opinion they will discontinue the business. We should have said that several physicians have left the county for the same reason.

The enforcement of the vaccination rule met with some opposition at first, and we have not been able to complete the work as we should have done in order to give the number vaccinated since the rule was adopted. The approximate number of pupils of school age in the county is eight thousand five hundred and fifty. Of that number, eighteen hundred and sixty-four are reported to me as not vaccinated. With very few exceptions, the people are disposed to favor the rules adopted by the Board.

The general health of this county for the past year has been good. We have been afflicted with no epidemics, and only a few isolated cases of diphtheria, and a single case of scarlet fever, which was duly quarantined against, thereby producing safety. This case was supposed to have been communicated to this place by a visitor, and would no doubt have resulted seriously, had it not been for the early diagnosis and prompt and efficient efforts of our local board of health, and the carefulness of the family in which it occurred.

All blanks received by me have been distributed to the parties to whom they properly belonged, and much time has been spent in fulfilling the requirements of the State and local boards.

Respectfully, J. T. ALEXANDER, *Health Officer.*

BURLINGTON, COFFEY COUNTY, KAS., Dec. 7, 1885.

J. W. Redden, M. D., Secretary Kansas State Board of Health—DEAR SIR: Herewith I submit the following report.

The health of this county for the past year has been good. We have had no epidemics or endemics. The fevers have been of a malarious character, and very mild in form.

The physicians of the county have all registered.

The rules and regulations of the State Board of Health have not been generally observed by physicians as to reporting deaths and births, only 16 births and 8 deaths having been reported for the months of October and November.

The county commissioners decided not to take any action in regard to vaccination unless we were threatened with small-pox. The number of children enrolled in the schools of the county is 5,829.

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I would suggest that the law be so amended that the rules and regulations of the State Board of Health can be enforced. Our county attorney holds that as there is no penalty except in case of deaths, physicians are not liable; and in fact that is the only rule that can legally be enforced, and in that case there is a question, as the law directs that the return shall be made to the local board of health and the blank forms say to the county clerk. Respectfully yours, WM. MANSON, *Health Officer.*

OBERLIN, DECATUR COUNTY, KAS., Dec. 1, 1885.

J. W. Redden, M. D., Secretary Kansas State Board of Health, Topeka, Kansas—DEAR SIR: In accordance with instructions of circular letter dated November 16, 1885, I have the honor to submit the following report.

The late date upon which I was appointed health officer of the county, and the still later one when instructions were received, renders the present report somewhat meager and unsatisfactory. It was on the 1st of November that I received the instructions, blanks, &c., and at least a week thereafter before the people of the county could be reached through the medium of the newspapers as to the subject of vaccination, and a few days later before virus could be obtained; so that the rule has not been observed as it would have been, if in force earlier.

REGISTRATION.—Nearly all the practicing physicians in the county have filed a certificate of registration with the county clerk. Only two, I think, have failed to do so. The name of one is G. B. Strong, Oberlin, Kansas, who was the first to receive a copy of circular letters dated September 7th and September 15th, 1885. The other is Wm. Pattison, Syle, Kansas, who has acknowledged receipt of circulars, and promised to register at once, but has not as yet. Another is an old gentleman, a spiritualist, who claims to cure by laying on hands; diagnoses a case through the medium of some spirit who gives him the desired information. This man has not registered, as probably he does not consider himself as coming within the list who are required to file a certificate. There are no midwives in the county who are professionals.

I have sent the circulars to a few who officiate quite often, but have received no response. Herewith find inclosed copies of the certificates of such as have filed them, certified as true copies by myself, as health officer, excepting my own, which is by the county clerk.

HEALTH OF THE COUNTY.—The health of the county is very good, and, in fact, has been since and before organization. During my residence here, covering a period of over seven years, there has never been an epidemic. There are no bodies of stagnant water of any considerable size or extent to produce malaria. The altitude, about 3,000 feet above sea level; air rare and pure, and, until the last two or three years, very little vegetation except buffalo grass. Within the past two years the variety of grass known as blue-stem has increased rapidly, changing the character of the soil, and

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other kinds of vegetation begin to appear, so that the amount of decayed matter to lie upon the ground in the fall of the year has more than quadrupled the amount there was seven, or even five, years ago. People coming from points east of the Missouri river are very apt to have derangement of the kidneys until they have become, as it were, acclimated, probably due to the change of water. The water is very good in the county, the running water being mostly from springs. The water from wells is very clear, but is of the same nature as that of the creeks, with the advantage that it is not contaminated by leaves falling in, as is the case with the streams in the autumn, sometimes as highly colored as weak coffee, and many who are compelled to drink it are subject to eruptions upon the skin in different parts of the body, which may produce a beneficial effect by being the means of eliminating impurities from the blood. I do not think that this atmosphere is beneficial to pulmonary disease when it has become in any degree seated, as the air is so rare that the lungs are continually over-exerting themselves to procure what seems to the patient a sufficient quantity of air, and they seem almost to exhaust themselves in the effort. My experience here has been that a consumptive's days were shortened by taking up a residence in this climate, but I do not think that a native-born citizen of the county would contract the disease as soon here, at the present time at any rate, as he would in the other settled portions of the country. Bronchial trouble is not as prevalent here, and asthmatics find almost instant relief, many having emigrated here for the very purpose of finding relief, and ninety-nine per cent. have found it. There has been but very little diphtheria here during the past seven years, and but a small per cent. proving fatal. Fevers are very rare. Typhoid, during my experience in the county, over seven years, had but very few victims, and the entire number of cases would not exceed half a score, so far as I am able to judge. Typho-malarial cases are more numerous. Fever and ague, I think, is all imported, the greater part coming from Indiana and Missouri, and Mississippi river bottom lands. As a whole, Decatur county is one of the healthiest in the State, and several counties in the northwest, of about the same altitude, are equally healthy.

VACCINATION.—Owing to the late hour at which the county board of health machinery was set to work, the result is not very satisfactory. In the first place, notice could not, through the medium of the newspapers, reach the people in all sections of the county in time to comply, had they been so disposed. There are several reasons why vaccination was not more of a success. In the first place it was not compulsory, or was not thought to be so, which produced the same result; that is, that many refused to submit. Second, there is always a class of skeptics who don't believe in the efficacy of vaccination, and we have a large share here. Third, the very cautious, who think it is a good thing, if we only knew the virus was from a healthy subject, and assurances that it was bovine and from a noted vaccine farm did not remove the caution, as the parties from whom I pur-

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chased "may have swindled you." Fourth, the class that say that the expense is too great and they cannot afford it, yet the same ones would take the whole family to a circus and not think the expense worth mentioning. There are about 2,000 school children in the county at the present time, there being some 1,750 in August, and the county superintendent informs me that it will now reach the former figures; and it is safe to say that not more than 10 per cent. have been vaccinated either before or since the rule was adopted. I think the rule should be made compulsory, and the present law amended to secure that end; and those who are actually too poor to pay the expenses should be vaccinated at the county's expense and paid for out of the poor fund. There are very few who would make affidavit that they could not afford it, so the county would pay but very little. A surplus of the poor fund is always on hand, on a ten-mill levy, and this year no levy was made for that purpose in this county. It is next to impossible to ascertain the number vaccinated under the rule, or who had ever been. I gave notice through the newspapers when the time specified in the vaccination resolution expired, and requested the teachers and school-district officers to investigate and inform me of the result; but only two responded, showing a great lack of interest in the matter. I do not think the people as a whole have any desire to oppose the law, but that it is more a matter of indifference, and that the immediate necessity of vaccination does not yet exist, as the locality in which the disease is raging is too remote from us to give any present anxiety.

In regard to the county commissioners' feeling in regard to sanitary work, I can say this much: Soon after receiving blanks, etc., from you, I addressed a letter to each of the commissioners, calling their attention to the importance of a meeting of the board being held for the purpose of organizing and making some definite arrangements, should anything occur requiring action by the board; at any rate to talk over the matter and ascertain what, if anything, was necessary to be done. To this communication I received but one reply, and that favoring a meeting. This one is a business man; the other two are farmers, whose interests do not extend beyond their own immediate self-interests. At the coming January session of the board I shall again agitate the subject. The new commissioner, who takes his seat in January, is also a farmer, but I think a little more progressive than the remaining farmer.

I do not know as I have any further suggestions or recommendations to make other than I have made, and I hope that the next report, if I make it, will exhibit a better showing than the present, though for the time I have had (about three weeks prior to December 1) I do not well see how I could have accomplished more. Our city has no health organization, and I suppose in the absence of any I would be in charge of its sanitary work. This is something I felt delicate about assuming in the absence of instructions.

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Please pardon the length and imperfections of this first report, and I hope the next will have a more satisfactory showing. Health is one of the conditions of life that cannot be over-estimated, and I hope that our territory will not be visited by any scourge that might have been prevented or mitigated but for our negligence of duty. Very respectfully,

A. W. BARITEAU, *Health Officer.*

LAWRENCE, DOUGLAS COUNTY, KAS., Dec. 5, 1885.

J. W. Redden, M. D., Secretary Kansas State Board of Health—DEAR SIR: In compliance with the requirements of the State Board of Health, I herewith present a report of the progress made in organizing under said law, to improve the sanitary condition and regulate the practice of medicine in Douglas county.

The local board was organized in July, and received blanks for registration on the 18th day of August. October 30th the blank certificates were received, and their distribution commenced; true, the registration was incomplete, and so much time was consumed in perfecting it and distributing blank certificates, that few births, deaths and marriages were reported for the month of November. The thoroughness of the registration and general distribution of blanks warrants us in expecting full returns for the present month; very few, if any, physicians who are engaged in actual practice have neglected to register. The following exhibits the number and classification of the physicians and midwives who have registered: Regulars, 33: eclectics, 7; homeopaths, 10; independents, 2; allopaths, 1; magnetic, 2; electric, 1; blank, 2; midwives, 8; total, 66. The number who reported as graduates of some medical school is 37; non-graduates, 26; not properly stated, therefore doubtful, 3; total, 66.

No definite action has been taken in reference to vaccinating scholars in the public schools. The superintendent of public instruction has promised his aid, and the local school boards will be invoked to coöperate in an effort to secure information. The number of children in Douglas county of school age is 8,555. How many of these have been successfully vaccinated I am not able to state.

In this connection I desire to state that at my request, J. A. Lippincott, Chancellor of the State University, and Rev. H. M. Greene, Superintendent of the Kansas State Asylum for Imbecile and Idiotic Youth, have each kindly reported the sanitary conditions of the institutions over which they preside as being excellent; and fully concurring in said statements, I herewith present their reports. The State University, School for Feeble-Minded, Baker University and Haskell Institute all being massed in Douglas county, with their scholars coming from all parts of the State and adjacent territory, renders it quite probable that contagious or infectious diseases will be introduced. To prevent occurrences of this kind and stamp out infection and contagion when introduced, will require sleepless vigilance.

The people of Douglas county have enjoyed unusual good health during

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the last year, having been exempt from epidemics of all kinds. A few isolated cases of diphtheria occurred, and a few deaths induced by it were reported. But it either lacked the usual element of infection or yielded to the disinfecting and improved sanitary measures, as it in no instance spread beyond the families where it originated. During the latter part of summer and throughout autumn typhoid and typho-malarial fevers have been developed at various points in the city of Lawrence and Douglas county. The infected families being widely separated and having no communication with each other, in no instance could it be said that the disease was communicated by those persons who had it. These facts led me to believe that the disease was produced by local causes, chief among which was impure water. This opinion I think is fully confirmed by the following cases. In the first family I found them using water from a drive well in sandy soil. A pit had been dug three feet deep and the pump stock driven down in the pit. Ducks, geese, and pigs were wallowing in pools of filthy water that drained down into the pit around the pump stock. This was connected, and though communication with the neighbors was not cut off, the disease was confined to only a part of the family. The second family used water from a well in a similar condition with the same results. The third family used water from a drive well similarly arranged, but in this instance the surface water from a stable washed down into the pit which contained the pump stock. The fourth family received their water supply from a drive well in the yard surrounding a slaughter house, the blood and washings from which ran down into a hog-wallow that surrounded the pump. The fifth family procured water from a cistern which was found to contain a number of dead toads. In this family the wife, daughter and a small boy had the fever, while the father and an older son who were away from home escaped, though they returned and nursed those who were sick. In the sixth family, the father and two sons who worked with him on the farm had typhoid fever. They drank water from an open well in the barn yard, while the mother and two daughters, who used water from a well in good condition in the door yard, escaped, though they nursed those who were sick and were therefore exposed to the contagion. In the seventh family two young men running a dairy turned their door yard into a cattle pen. They slept on the floor in the house and used water from a well in the yard that was surrounded with the excreta from the cattle several inches deep. One of them died, while the other had a very narrow escape. In the eighth family the husband and wife both had typhoid fever. The well was open and in bad condition. Two young women (sisters) nursed them and both returned home and had typhoid fever. Disinfectants were freely used, and though there were eight persons in the family not one of them was attacked; I therefore infer that they contracted the disease by using impure water while attending their sick neighbors. My object in presenting these cases is to call attention to one of the most common sources of the origin of

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typhoid fever. That the disease may be contracted by contact with the patients suffering with it, I think there is no doubt, and for this reason the most thorough and powerful disinfectants should be judiciously employed. I think the importance of this measure clearly illustrated in the foregoing cases, as the spread of the disease was immediately arrested when the original cause was removed. Yours truly,

N. SIMMONS, M.D., *Health Officer.*

LAWRENCE, KAS., December 5, 1885.

Dr. N. Simmons, County Health Officer—MY DEAR SIR: In answer to your communication of 2d inst., I may say that we have in attendance about 370 students, and that the general health is very good. Indeed, I may say that the continued good health of our students is remarkable. There has been nothing, so far as I know, of epidemic or endemic nature to break the force of this general statement. I am sincerely,

J. A. LIPPINCOTT, *Chancellor State University.*

BAKER UNIVERSITY,
BALDWIN, KAS., Dec. 11, 1885.

N. Simmons, M. D.—DEAR SIR: I regret that I have delayed answering your communication. I overlooked the fact that your report was to be made by the 10th, and a press of duties just now caused the delay. Our students have had good health for the most part. There were several cases of malarial fever; one of which went to the loins, and the young man died. The other, that of Miss Erick, went to the brain. The doctor thinks her hard work on her father's books in the store last summer made her susceptible to the disease.

H. W. SWEET, *President.*

SUPERINTENDENT'S OFFICE,
KANSAS STATE ASYLUM FOR IMBECILE AND IDIOTIC YOUTH,
LAWRENCE, November 4, 1885.

Dr. N. Simmons, County Health Officer, Lawrence, Kas.—DEAR SIR: In response to your kind invitation, I submit the following as a report of health for the Asylum for Imbecile Children during the year ending November 30th, 1885. The average number of pupils in attendance during this time was 25⅓. Our practice is to allow parents to remove their children for vacation on or after July 1st. These are again received September 1st, when the terms open, but are often not returned for a considerable time afterward. This will explain the fact that with 31 pupils in present attendance (beyond the proper limits of the building), the average is below. The only case of illness among the pupils the entire time occurred in January last, a case of simple influenza, which endured only two days. There have been at times incipient symptoms of disease, which by careful attention and proper treatment has been overcome. One death occurred November 26th, 1884—a case of atrophy of long standing, aggravated by profuse suppuration from a superficial though extensive burn, received accidentally some weeks before. No blame attaches to any of the employés of the institution,

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the accident occurring through the failure of the acting board to appoint or allow the appointment of a night attendant—an error speedily and thenceforth provided against repetition. The entire amount of medical attendance from without was four visits, for which four dollars was paid. When the character of the population thus presented is considered, many being afflicted by anemia, epilepsy, scrofula and other diseases in various stages of development, and scarcely one free from some form of bodily ill or deformity, I am amazed at the immunity from diseases we have thus far enjoyed, and can only refer it to the sleepless care of the kind Providence who watches over the most feeble and insignificant of his creatures, and to the skillful ministrations of the Matron and employés.

I am, most respectfully, yours faithfully,

H. M. GREENE, *Superintendent.*

EUREKA, GREENWOOD COUNTY, KAS., Dec. 6, 1885.

To the Honorable Secretary of the State Board of Health: You will find inclosed with this report the registration of physicians in this county, up to date; and I must say that I do not know of five physicians but what have signed the registration as soon as their business would permit, and they seem to be very glad that such a law is to be enforced by our board of health. The blanks not arriving till October 26, 1885, has made a very short time to see the workings of the rules and regulations of the State Board of Health, but the physicians have lived up to the law as well as they could, and as the duties are more fully known they will be lived up to as well as any law.

We have 5,684 school children in our county, and the time being so short I have no report to make of the number vaccinated or the number not, but will try to make a supplementary report later.

The health of the county has been good, and remains so; our cities have a board of health committee, who have labored for the sanitary condition of these respective cities, and there being no endemic or epidemic diseases in the county the state of health in the county has been above the average, and there is a desire among the people to learn how to prevent disease more than has been before.

Our board of county commissioners are gentlemen of learning and workers in the sanitary work, and any means that will instruct the people how to ward off disease are heartily indorsed by them. I have myself assisted all I could in the labors. As for the work done by your humble servant, but little has been accomplished, but the machinery has been set in motion, and another year will tell better the labors that have just been begun; whether for good or not, remains to be seen.

The rules and regulations are being lived up to by ministers, justices of the peace, physicians and all.

Trusting that the work just inaugurated will be of great advantage in the sanitary work of our State, I remain,

Very respectfully, F. W. WATSON, M.D., *Health Officer.*

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HARPER, HARPER COUNTY, KAS., Dec. 6, 1885.

J. W. Redden—DEAR SIR: I send by to-day's mail a report of the registration of physicians for Harper county. About a dozen physicians have failed to comply with the request, although I gave them personal notice. What is best to do about it?

There has been nothing done as yet in regard to vaccination. It will be impossible to enforce it, with the present board of commissioners.

An epidemic of measles passed over here during the first of the year, but the attacks were very mild in character. Health of the county has been good. W. G. MUIR, *Health Officer.*

NEWTON, HARVEY COUNTY, KAS., Dec. 7, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—SIR: In compliance with a circular from your office of November 16th last, I here submit my report. Owing to circumstances beyond my control, it was impossible for me to make my report before the 6th of December. Indeed, I am now unprepared with the statistics necessary to make my report as full as you require.

1st. I herewith return a full and correct copy of the registration of the physicians and midwives of Harvey county, to December 1st, 1885.

2d. The state of the health of the county is good, and has been good, since January 1st, 1885, except cases of typhoid fever. In regard to said cases of typhoid fever, permit me to refer you to the inclosed reports of Drs. H. A. Ensign, James McKee, J. T. Axtell, of Newton, and Dr. E. J. Gyulay, of Halstead. I refer you also to the report of Dr. P. W. Easling, as to health of Burrton and vicinity; to Dr. Goddard, for the health of Sedgwick City and vicinity; to report of Dr. W. A. Ritchey, for health of Walton and vicinity—all of this county. Said reports are all inclosed herewith, and they give a complete statement of the health of the county.

3d. In regard to observance of rule for vaccination and registration, I know of but one physician in the county who has failed to register, (Dr. B. F. Hittell.) Of him I wrote you fully in October last.

4th. There are, according to the statement of the county superintendent of schools, 6,240 children of school age in Harvey county.

5th. It is impossible for me to report to you the number of school children who have been vaccinated since the vaccination rule was adopted, the number previously vaccinated, or the number who have never been vaccinated. The only way that I know of to obtain this information, would be to have an authorized agent (who should be a physician) to visit all the schools in the county, examine all the children, and collect the vaccination certificates, report all who have been vaccinated, as well as the number not vaccinated. Dr. Axtell, one of the school board of Newton, reports one school (north side school) of the four in Newton, as follows: Number vaccinated, 215; not vaccinated, 130; vaccinated since notice, 22.

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6th. There have been no vaccination certificates returned to me, and I suppose will not without special notice.

7th. There has been no epidemic in the county since January 1st, 1885, except those referred to in the inclosed reports.

8th. In regard to the disposition of the people to oppose or observe the rules, etc., of the State Board, I can report that but very few of the people are cognizant of the existence of the law, or of the State Board, or rules of State Board. It is all a new thing yet to the people. All who know of the rules heartily approve them.

9th. The county commissioners join heartily in all recommendations for sanitary work, and for carrying out the rules of the State Board of Health.

10th. In regard to any suggestions or recommendations which I might make, I must confess that I have not (for the want of time) given the matter sufficient thought to feel qualified to suggest any changes or alterations in the rules. I would suggest that the blanks furnished physicians for recording births, deaths, etc., are too complicated; require too much labor of the physicians who are in active practice. It is rarely the case that parents are ready to name a child immediately after birth. Then how is the physician to fill a blank for the name? In case of death, a physician may visit a patient ten miles in the country to-day, patient dies to-night: how can the physician fill the blanks in the certificate without an additional visit to the family, for which he of course would get no pay? Would it not be sufficient to give name in full, sex, age (approximate), disease of which patient died, date of death, etc.? Respectfully, &c.,

JAMES R. DUNCAN, M.D., *Health Officer.*

WALTON, HARVEY COUNTY, KAS., Nov. 24, 1885.

J. R. Duncan, M.D.—DEAR SIR: The town of Walton and vicinity are very healthy. No epidemics; a very little biliousness, and hardly the amount of colds for this season of the year.

Yours respectfully, W. A. RITCHEY, M. D.

SEDGWICK, HARVEY COUNTY, KAS., Nov. 30, 1885.

Dr. J. R. Duncan—SIR: I beg leave to report the health of Sedgwick and vicinity is remarkably good, and the sanitary condition of the town is in fair condition. Yours, J. W. GODDARD, M. D.

BURRTON, HARVEY COUNTY, KAS., Nov. 28, 1886.

Dr. J. R. Duncan, Newton, Kansas—DEAR SIR: I make the following report: We have had no disease prevail here epidemically this fall; we have had very few cases of diphtheria, very mild ones; the health of the town and surrounding country was never better.

Yours respectfully, P. W. EASLING.

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NEWTON, HARVEY COUNTY, KAS., Nov. 25, 1885.

To the Hon. Board of Health—GENTLEMEN: During the past two months there has been no prevailing epidemic within our circuit of ride, with the exception of a number of cases of typhoid fever or typo-malarial fever, confined to a single school district, and supposed to have arisen from using impure water from a well adjacent to the school house. The weather has been mild and uniform, and there have been but few diseases incident to our climate during the late fall months. Death rates have been unusually small the summer and fall months.

H. A. ENSIGN, M.D.
JAMES MCKEE, M.D.

HALSTEAD, HARVEY COUNTY, KAS., Nov. 21, 1885.

J. R. Duncan, Health Officer of Harvey County, Newton, Kansas—DEAR SIR: In compliance with your request of November 19, 1885, I respectfully submit the report, as demanded, basing the same upon the information gathered from the other practicing physicians of our town, and my own observations.

The favorable weather of the season, as also the fact that not so much prairie is being broken as in previous seasons, had a highly beneficial influence on the sanitary condition of our town and vicinity. The predominating diseases and disorders are mostly of a catarrhal character—catarrhus pulmonaris, catarrhus laryngealis et trachealis, and cynanche trachealis being prevalent. The malarial diseases are but sporadic, and a few cases of the typhoid character came under observation, all being in a fair way to recovery. Among the Russo-German population of the vicinity, many cases of dermal diseases are to be found, as a consequence of their utter disregard of cleanliness, and hygienic rules. One isolated case of whooping-cough came under observation, but is abating at present. Of epidemic diseases, no cases of either variola, scarlatina, diphtheria, etc., have come under treatment or to the knowledge of either of the practitioners.

The ruling of the State Board of Health relating to compulsory vaccination of the school children does not seem to be enforced, as so far no applications for examinations, as regard previous successful vaccination, or for vaccination, have been made to any of the practitioners.

Taking into consideration the population of this town and vicinity, the crowded condition of its public schools and the incessant transit of emigrants by the overland route and by railroads, as also the rather poor quality of our drinking-water on an average, the sanitary condition of the place must be pronounced a satisfactorily good one, and may be expected to remain such, at least as regards the town proper, as the same has been supplied with an effective system of drainage. But changes, especially as regards the malarial and pulmonary affections, may be looked for if there should be a sudden change of the weather, or the season become very wet.

Believe me, sir, yours respectfully,

DR. E. J. GYULAY.

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NEWTON, HARVEY COUNTY, KAS., Dec. 1, 1885.

In October, 1884, I attended a case of typhoid fever in Newton. Six months before, I had attended a case of the same fever one block away and on higher ground, and in which I had reason to believe the disinfectants were not used as ordered. In three weeks after the first-named case began, others followed in the same family, until we had ten cases in all. The sanitary condition of the place was good as far as could be ascertained. The cellar was dry, clean, and whitewashed; no pools or filth about the premises; no bad taste or smell about the well-water. Only one member of the family escaped, and he drank no water from the well. A girl who took care of the children during the day, and who was not in the sick-room but who drank very freely of water from the well, also took the fever about two weeks afterward. Four of the cases were removed to as many different places in town, but no typhoid fever has occurred at any of those places. Boiling water and copperas were used freely to disinfect all excrements, which were then covered with dry ashes. Ten months later a young man came to board with the family, and soon had typhoid fever. None of the nurses nor attendants had the fever, but none of them drank of the well-water. Another outbreak of typhoid fever occurred in the southeast part of town, which was confined to three families who used water from the same well. A few months later three cases occurred in a family living one block away, and a laborer who drank water from their well also took the fever. No cases of direct contagion could be traced. In November, 1884, a case of typho-malarial fever occurred five miles northwest of town, in which no contagion could be traced. It soon spread through the family and among the hired help, until there were fifteen cases in all. Only two living at the house escaped, and they gave no history of ever having had the disease. During the past summer there have been twenty or thirty cases in the neighborhood within a radius of three miles. It generally went through a family when it started, although the parents would oftener escape than the children. About September, 1885, a young man returned from Sumner county to his home two miles southeast of Newton, with what proved to be typhoid fever. It soon spread through the family, until there were eleven cases in the house. Three of them succumbed to the disease. The stools were not disinfected, and the sanitary condition of the place was very bad. The hogs wallowed in a pool of water near the well. One of the family escaped without fever. A school of over forty pupils used water from the well, and in November there were between thirty and forty cases of typhoid fever in the district, all of whom had drunk water from the well. There were no fatal cases outside the family. The fever in this locality is often complicated with malaria, though not always. It lasts from two to six weeks, and will average three or four weeks. The maximum temperature averages 103° to 104°, but may be higher. Carefully treated and nursed, it proves fatal in about one case in fifty. In June or July last, a case of small-pox was found in the city, although it could not be ascertained where it originated. The whole family

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were moved out of town, and all (about six) had the disease. Before they were well they were moved to the house of a relative, and several others contracted the same, but it did not spread outside the family.

Respectfully, J. F. AXTELL, M. D.

JETMORE, HODGEMAN COUNTY, KAS., Dec. 1, 1885.

DR. J. W. REDDEN: There have been no registrations since my last report; all the physicians in the county have registered but two, (Dr. Bower, of Hodgeman, and Dr. Murphy, of Cowland,) who sent in their statements to the clerk, which, however, were so imperfect that they were not entered. They will probably attend to it soon. No midwives have registered. Only one made any reply to my circular letters, and she cannot register. Their number is somewhat indefinite, but I sent notices to five; there are possibly others who occasionally practice.

The vaccination rule has not been observed, as yet; but few of the schools have opened yet. However, the county superintendent and myself concluded it would be very difficult to get the pupils to present themselves, and decided to urge the commissioners to appoint a physician to visit the schools for the purpose of vaccinating the pupils. They will confer on it at the next meeting. The children were all vaccinated in two townships in the county about one year ago, as they had some small-pox cases in the neighborhood. There are now about 650 school children in the county. The commissioners seem willing to assist me in the work, but express some fears as to its popularity, especially the vaccination rule.

There have been no epidemics or endemics in the county this year, though in May and June the ratio of dysenteric cases seemed rather in excess. We also had a few cases of typhoid, but the general health was excellent, considering the fact that thousands of cattle and sheep carcasses were lying decomposing in the streams, on the highways, and around the dooryards. The health has been still better since this has passed away. (You will understand that this unsanitary condition existed before the health board was organized.)

In a frontier county like this, there is comparatively little work for the health officers. I have not yet received instructions, etc., promised. I believe this includes the report as full as it is possible to give it at present; am sorry we could not get it more complete. Your, as ever,

M. F. ROLENS, M. D., *Health Officer.*

HOLTON, JACKSON COUNTY, KAS., Nov. 28, 1885.

Dr. J. W. Redden, Secretary State Board of Health, Topeka, Kansas: As health officer of Jackson county, I herewith submit, for your consideration, my first report. The registration copy that I inclose with this is full and complete, all physicians of Jackson county having registered. An inspection of it will show a registration of twenty practitioners, of whom fifteen are regulars, three are homeopathic, one eclectic, and one physio-medical.

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It may be observed here, that with the exception of two or three irregulars, all practitioners registered are fair representatives of the different schools of practice, and with but a single exception all have cheerfully complied with the law, reported their contagious diseases, and in all respects each has contributed an individual effort to make the medical law a success. There are no practicing midwives in Jackson county.

The number of children of legal school age is approximated at thirty-seven hundred, nearly all of whom (I cannot give you the exact per cent.) were vaccinated two years ago, during a small-pox scare that existed at that time. There is now, and has been since its promulgation, considerable opposition to your resolution regarding compulsory vaccination. (Resolution 4, page 8.) The principal reason seems to be that while no epidemic or threatened epidemic of small-pox exists, there is no necessity for vaccination. Bearing in mind the great number already successfully vaccinated, I have deemed it prudent not to be too arbitrary in enforcing this resolution, as the children not vaccinated are of our younger school population.

The disposition of the people generally is to observe and comply with all other rules willingly and promptly.

The board of county commissioners have rendered me all necessary encouragement and aid for the performance of all required sanitary work. In Jackson county there are no large cities. The habits and inclinations of the people of the various towns are cleanly—hence I have not been called upon to do a great amount of sanitary work, but all that was required has been well done.

At the July session of the board of county commissioners the health officer was appointed. At once measures were adopted for a thorough and general cleaning-up. Within thirty days every offensive hog pen and privy in Holton was cleaned and disinfected; all refuse and garbage from back alleys was cleaned up and drawn away. Thus, I believe, thirty-eight privies and as many hog pens were disinfected. No complaint has been received since several nuisances were reported and promptly removed. In the smaller towns of the county each householder occupies more land. No one is compelled to confine himself to narrow limits, hence but little sanitary work has been required.

I have no suggestions or recommendations to make. I believe your rules and resolutions are sufficiently full, and I am sure an observance of them as they exist will work great sanitary good to the people of Kansas. The medical law, as it now exists, is not satisfactory to the reputable element of the profession in this section of the State. It is to be hoped, however, that at the next session of the Legislature your honorable Board may exert such influence and make such suggestions that a bill may be agreed upon, and a law made, that will be satisfactory to all practitioners of all schools.

Since the distribution of blanks in October, there has been reported to the county clerk, and filed by him, a record of fourteen marriages, eighteen births, and three deaths.

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There have been reported to me as county health officer forty-one cases of contagious diseases, all diphtheria, of whom thirty-eight recovered and three died. The low mortality here may strike you as something unusual, but we have had one of the most peculiar epidemics of diphtheria in this section during the past year or two it has ever been my lot to witness. As no cases were reported until October, I cannot give you the number of persons attacked nor the per cent. of mortality. This epidemic has existed for nearly two years, sometimes many being afflicted, sometimes but few. I believe it to be a fact, however, that at no time during the past two years has our county been entirely free from this dread disease. Sometimes the mortality has been 50 per cent., at others not one-half of 1 per cent. Seasons have made no difference, either in number or mortality. As Dr. Scott (my partner) and myself have treated perhaps 150 cases, I will give you, briefly as I can, a history of this disease as we have observed it.

In the northern part of Jackson county, running northwest and southeast are two prominent ridges or elevations of land, distant from each other perhaps a dozen miles. On the higher of these ridges are situated the little towns of Netawaka and Whiting, well elevated, well drained and cleanly—apart from each other six or seven miles.

In the latter part of 1883 Netawaka was visited by an epidemic of diphtheria whose course was so virulent that at first nearly every case attacked died. Whole families were swept away, children and adults. People were nearly panic-stricken at the violence and malignancy of the disease. Children would sicken one day and die the next. So it was until I should judge fifty died, when slowly, without ceasing entirely in the little town, it spread along the ridge, reaching Whiting on the one side and Soldier on the other; it repeated itself in both, though not so many died. Now for a time it parpartially slumbered.

During the year 1884, it crossed the lowland space and appeared in Circleville, situated on the lesser ridge. This little town of four or five hundred is not so clean nor so highly elevated as its sister hamlets. For a time the disease raged violently, though not with so great mortality as occurred in Netawaka. From Circleville it spread to Holton, a town of 2,500, situated upon and on either side of the ridge above spoken of. Our experience with it here is, all severe cases with death following occurred on high ground, while, as a general rule, all mild cases with no severe complications occurred on low ground. The mortality here has not been so great—not that the physicians of Holton were more skillful in their treatment of it, but as it progressed it became milder. I might say, "as it started down hill a brake was applied." I will not attempt to explain this peculiarity. Different, I believe, from the general behavior of diphtheria, it was not confined to the families of the poor, but on the contrary. Thus we have one street extending north and south, occupying the highest ground in the city; upon this street (sometimes called by our humbler, but possibly a trifle jealous

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people, "swell-head row," on account of its containing the residences of most of our prominent citizens), not a single family escaped. A good many of the cases were mild, however, and readily recovered.

The treatment followed by all the regular practitioners was very much the same, consisting of tincture of the chloride of iron, chlorate of potassium and glycerine internally, with stimulants and quinine. Locally, some used lime-water, some iodoform, some lactic or carbolic acid. Others used ammoniated tincture of guaiac. Inhalations of the fumes of tar and turpentine were tried by several, myself among the rest. I speak of this being the general treatment, but at some time during the epidemic, I believe I am safe in saying that every means and every drug ever recommended for the treatment of diphtheria was tried, usually to the disappointment of those who tried them. The best results were obtained from the potassi and iron given about as recommended by Jacobs, with some solvent locally, such as was spoken of above.

There are several cases of diphtheria existing here at this time, but as I said in the beginning, the mortality is just now low. I have not entered into a discussion of the causation, simply because I do not know the cause. I have said nothing of the symptoms, because they were the symptoms of diphtheria which all practioners know. I have said nothing of the diagnosis, because there is nothing to say. We have had an epidemic of diphtheria in Jackson county: we know it was diphtheria.

JOHN A. RAFTER, *Health Officer.*

OSKALOOSA, JEFFERSON COUNTY, KAS., Dec. 4, 1885.

J. W. Redden, M. D., Secretary State Board of Health—DEAR SIR: I would report that the law for registration has been strictly complied with in this county, and as far as I can ascertain all the M. D.'s are sending in returns of deaths, births, etc. The vaccination reports have been, to all intents and purposes, ignored both by the school boards and scholars. We have had no epidemic or endemic in this county since the law went into force; do not think there has been a year in the past ten that there was as little general sickness as the past. Respectfully submitted.

W. H. BUCKMASTER, M.D., *Health Officer.*

MANKATO, JEWELL COUNTY, Dec. 9, 1885.

To the Secretary of the State Board of Health—DEAR SIR: I cannot make full report, from the fact that I did not get blanks in time to send them to the different physicians until the last of November. The health of Jewell county during the year 1885 has been better than for several years past.

There has been a general opposition to the vaccination rule, but a little time will bring it about all right.

The registration rule has been generally respected. There are five physicians and two midwives that have not registered, but will very soon.

We have not had an epidemic in this county during the last year.

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There is a disposition on the part of the people to oppose the rules of the State Board of Health, but this prejudice is now in a great degree giving way. The county commissioners are becoming more interested in sanitary work. I have to do all of the work, which makes it slow and hard; but I intend to make it a success.

Yours truly, WALTER CREW, M.D., *Health Officer.*

OLATHE, JOHNSON COUNTY, KAS., Dec. 5, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka—DEAR DOCTOR: Owing to the conditions of affairs and elements to contend against, my report is not as full as I would wish.

There is vast room to work and improve on the difficulty which has attended the work of improving the sanitary condition of the people, and reaching the vital statistics; this shows the importance and necessity of a thorough organization of the State and local boards, and the importance of further legislation on the subject.

The county board have adopted so far all rules of the State Board, but all the work devolves on me as health officer. To begin with, Olathe city has no local board of health, and even the physicians, some of them, use their influence against vaccination and health rules, and they seem to be aware that we cannot by law cause the school boards to adopt the vaccination rule, as I have repeatedly, by notices and personal attention, called to their notice the importance of vaccination, but not to much effect. There are 6,444 school children in this vicinity, three-fifths of whom have been vaccinated, and about three to four hundred since I called the school board's attention to the matter. Our county superintendent's influence is rather against than for. Our jail and poor-house are a disgrace to the county, regarded from a sanitary point of view.

There have been four cases of catarrhal diphtheria and three of scarlet fever, none proving fatal, and by energetic measures were confined to that number. The health of the county has been better than in the last two years, although there has been more mortality in proportion.

All the physicians have registered in this county except one, and one midwife, who will do so this week. Thirty-six physicians and one midwife have registered, making about one physician to every 417 inhabitants.

The per cent. of deaths cannot at present be reached, but after January 1st I think it can be done. Since the blanks have been distributed eleven deaths have been reported: 1 from consumption, 1 suicide, 1 from old age, 1 from cerebral hemorrhage, 1 from inflammation of bowels, 1 from chronic diarrhea, 1 from premature birth, 1 from confinement, 1 from typhoid fever, 2 from typhoid fever (unreported), 1 from erysipelas; births, thirty-three; still-births, 4.

As regards suggestion, it would seem to me that if it were possible for the county health officers of each county to meet at Topeka, and under the

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State Board, give their views and have them use their influence at the coming Legislature, the result would be good. With the law as it now stands, vaccination cannot be enforced, and incompetent persons cannot be prevented from practicing. If there is anything more, please notify me, and I shall be glad to attend to it.

Marriages have not been reported, but soon will be.

Respectfully, R. A. WILLIAMS, M.D., *Health Officer.*

OSWEGO, LABETTE COUNTY, KAS., Dec. 5, 1885.

Honorable J. W. Redden, Secretary Kansas State Board of Health, Topeka, Kansas—DEAR SIR: I beg leave to report to you as follows:

1st. That a true and correct copy of the register for physicians and midwives practicing in this county is herewith forwarded to you.

2d. That the health of the people of the county has been exceptionally good during the year 1885.

3d. That the vaccination rule has been only partially complied with, and the registration rule has been entirely complied with except a few obscure midwives who have failed to register—number, two, both strangers, who are not sure of locating; and the midwives who have failed to register—number, five.

4th. That the school children in this county number ten thousand and one hundred.

5th. That the number who have been vaccinated since the adoption of the vaccination rule is about five per cent. The number previously vaccinated is about fifty per cent., and the number never vaccinated is about 45 per cent.

6th. That we have had a mild epidemic of scarlatina, no deaths occurring therefrom; also a limited epidemic of roethlen; and in the family of an emigrant there occurred seven cases of measles, but the family and patients were isolated and so an epidemic was prevented. At present in the west part of the county there is tonsilitis, apparently epidemic; it is very severe, having caused several deaths. Malarial fevers are and have been endemic in the river and creek bottoms of this county.

7th. That 25 per cent. of the people will oppose the rules, regulations, etc., of the State Board, especially the one requiring vaccination, and the one requiring isolation of a patient suffering from a contagious disease. Twenty-five per cent. will favor the rules, etc., and 50 per cent. will be indifferent to them.

8th. That the apathy and indifference of the county commissioners are sublime.

9th. That as health officer, I have succeeded in getting the physicians and midwives to register, and have distributed to them the blanks necessary for the returns of births and deaths. I have got 10 per cent. of the unvaccinated school children vaccinated; have got our towns in a good sanitary condition. I have got the Parsons city council to adopt the rules, etc., of the State Board as part of their ordinances. I have called the attention of the

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people all over the county to the rules, etc., of the State Board; have notified all physicians and midwives of the law of 1870, chapter 68; have kept a correct record of all births, still-births, deaths, and marriages, which have occurred in this county since October 1, 1885; and have complied with, and enforced as much as was in my power, the rules, regulations, resolutions, etc., of the State Board of Health, and the laws of Kansas on sanitary and hygienic matters.

10th. I also beg leave to report that there have occurred in this county, from October 1, 1885, until November 1, 1885, 40 births, 1 still-birth, 13 deaths, and 10 marriages; and from November 1, 1885, until December 1, 1885, there have been reported to me 34 births, 1 still-birth, 6 deaths, and 17 marriages.

I hereby certify that the above is as full, complete and correct a report as it is possible for me to make at the present time.

I am, very respectfully, your obedient servant,

E. E. LEGGETT, M.D., *Health Officer.*

MOUND CITY, LINN COUNTY, KAS., Dec. 1, 1885.

State Board of Health: I herewith send report of registration, which I believe to be complete.

The health of Linn county is generally good. There has been rather more typho-malarial fever this fall than is usual, and the typhoid symptoms predominate; there being more diarrhea, more hemorrhage from bowels, and I think more fatality, than is usual.

The registration rules have been complied with, but the rule for vaccination has, I think, been almost entirely ignored. There are about 6,000 school children in the county. I think a good majority were vaccinated before the new law, and very few since.

The county commissioners are not opposed to the rules of State Board, but do not have an active interest in the matter.

I have delivered all circulars sent, and answered all questions asked.

Sanitary conditions are fair, as far as I am able to learn. No epidemic or endemic disease in county except above stated.

I. E. COE, M.D., *Health Officer.*

MARION, MARION COUNTY, KAS., Dec. 10, 1885.

J. W. Redden, Secretary State Board of Health—SIR: As health officer of Marion county, I beg leave to report as follows.

Owing to the late arrival of necessary blanks, the physicians of this county have not responded as heartily to the rules and regulations of the State Board of Health as could be wished. However, they are beginning to respond, and I hope to be able to make a more creditable showing during the coming year.

The county commissioners are doing all in their power to carry out the

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law, in all of its provisions, and have aided greatly in enforcing the rules in every case of reported contagious disease.

The past year has been signally healthful in this county, and we have no epidemic of any kind in our midst, and less of malarial fevers than ever known before. Since our board of health has been established we have been notified of one family having variola, but, thanks to the prompt and efficient action of the city officers of Hillsboro, it was confined to its first limits. A few cases of scarlatina of a mild type have also been reported; every precaution has been taken, and we hope no further trouble will occur. One case of dipheritis only has been reported, and that a mild one.

Vaccination is not receiving the attention among the schools it should; but our county superintendent has issued a circular to all the school boards of the county, calling their attention to the matter, which we hope will have the effect desired. Many of the foreign population, especially the more ignorant, are greatly averse to vaccination, and only by compulsory law can its provisions be carried out. I am unable to form any correct estimate of the number vaccinated or unvaccinated among the schools, as no physician or school board has reported thus far.

So far as can be learned, every physician in the county has registered, and a few midwives; (a copy of the registration is inclosed.) I have endeavored to get the names of midwives doing business in the county without registering, but have failed to get replies from the physicians in time to incorporate in this report.

All blanks received from the State Board of Health have been distributed as rapidly as possible among the physicians and midwives, but many justices of peace have failed to send for the marriage certificates.

We hope to render all the aid in our power in enforcing the laws; and as parties concerned learn their duties, it will be much easier to render a report in detail than at present. JAS. N. HANNAFORD, M. D., *Health Officer.*

FRANKFORT, MARSHALL COUNTY, KAS., Dec. 1, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR SIR: I have the honor of submitting the following brief report of sanitary work since the organization of the Marshall County Board of Health last May.

The work is new, and not well understood by the general public, but is generally accepted, and regarded as being all right. The board of county commissioners have done all in their power to aid the work; have given every possible encouragement, and have granted all orders to meet current expenses without hesitation. When I inspected the public buildings of the county they made the rounds with me, and acted promptly upon my suggestions and recommendations. They are entitled to the highest praise and credit for the work they have done in this county.

I herewith transmit certified copy of registration of physicians and midwives in Marshall county, for your information. This embraces the name

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of every physician practicing in the county, 44 in number; only one midwife has registered. I am informed there are some eight or ten in the county that have practiced heretofore; of their future purpose I have no knowledge.

I have placed a copy of births and deaths returns in the hands of each registered physician and midwife in the county; also vaccination certificates. I have also a list of the names and addresses of all persons in the county authorized to solemnize marriage, and have placed a copy of the returns of marriages in the hands of each, 43 in number.

The school census is 8,132; the number enrolled in school is about three-fourths of the census; of the number enrolled, about three hundred have never been vaccinated; the remainder had been previously vaccinated. The sentiment of the people is generally favorable to the vaccination rule; I find a few that raise objections, saying that vaccination will make their children unhealthy, "yaller and spotted."

There has been no epidemic disease prevalent in the county during the year, except within the last ten days. At Barrett, a village three miles west from this city, there are five cases of diphtheria in one family, of a malignant type. Last week one of the children died; the other four are still living, with but little hopes for their recovery, to this date. The disease has not spread, but is confined to the one family, who came here from Rooks county affected with the disease. There have been no epidemic diseases prevalent in the county more than usual. The general health of the county has been good — above the average of last year.

I now have given you a brief statement of the work done in the county. The foundation-stones have been placed in position, and the material is abundant for building up a grand and noble work, with the results of increased health, wealth, and happiness.

Yours very respectfully, W. H. CLUTTER, M. D., *Health Officer.*

MCPHERSON, MCPHERSON COUNTY, KAS., Dec. 1, 1885.

J. W. Redden, M. D.: I have to report 6,982 pupils in this county who draw public funds, with an enrollment of less than 4,000.

Resolution No. 4 by State Board of Health was about equal between a failure and success.

The physicians who are in practice have registered. Midwives, except one, have failed.

Our county has been comparatively free from epidemic or endemic diseases during the year. Accidents requiring surgical treatment have been in excess of former years.

I submit the above as my report, as required by the State Board of Health.

J. O. DAY, M. D., *Health Officer.*

LOUISBURG, MIAMI COUNTY, KAS., Dec. 7, 1885.

J. W. Redden, M. D., Secretary State Board of Health—DEAR SIR: Herewith please find report of births, still-births, deaths, etc., for Miami county.

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With the tardiness manifested in reporting the certificates, etc., this is the best that can be done this time. The time after receipt of blanks was too short to distribute them and receive anything like a full report.

Also herewith please find the roll of the physicians of this county as recorded by themselves up to December 1st; none since.

The health of the county is better than is usual for the season. No epidemic or endemic sickness in the county this fall.

Vaccination rules have not been generally observed. I have left it with school boards to enforce. No vaccinations reported to me; county clerk can give number of school children in county.

Registration pretty generally observed by practicing physicians. I have no means under the sun of getting at the number of physicians and midwives who have not registered. Not a midwife has registered as such. Registration of physicians is about all that has been accomplished so far.

The people generally pay but little attention to the rules and regulations of State Board of Health. County commissioners are ready to enforce the sanitary rules so far as they think best for the public, but are not disposed to go to any expense. The commissioners of the county are ready and willing to enforce the sanitary rules so far as it can be done without too much expense to the public. The officers named are State officers, and get pay from the State for services rendered the State. There is no pay allowed physicians for such services, and they cannot be made to serve the State without pay. These county boards of commissioners will not pay the health officers enough that they can afford to neglect their private business to do this statistical gathering.

I would suggest that as there is a law requiring every party who contracts a marriage to get a license of the probate court, therefore it would be best to furnish the probate judges with the marriage certificates and have the officiating officer, a minister, fill out and return it with the license; then at stated times let the probate judges of the several counties make report to the Secretary of the State Board of Health. That is the only practical way to get at the correct number of marriages. I would also suggest that the Legislature require the parents to make returns of births, deaths, etc., with age, sex, name, etc., to township assessor, furnishing him a book for the purpose. In going from house to house over the several townships they will collect these correctly, regardless of who attended medically. Physicians cannot collect these accurately, and if not accurate they are worthless as statistics. The assessor can also collect the number of vaccinated children, and number of school children, better and more correctly than the physicians. I think it the height of folly to require the physicians to give the births, deaths, etc., when they do not attend all such, and when they do they often do so without knowing the names of the parties except as "Mrs. Jones" or "Mrs. Smith," let alone the full given name, and nativity of both parents, and often the child is not named for months. The assessor, if furnished

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books for this, can get all of them with but little trouble; the probate judge can get all the marriages; and thus you get the whole thing, and correct. These might then condense their reports and furnish the health officer a condensed report, and he report to the Secretary of the State Board of Health. These suggestions I think the surest way of ever getting a correct statistical report of marriages, births, deaths, etc., as the State Board of Health desires.

J. D. BRYAN, *Health Officer.*

BELOIT, MITCHELL COUNTY, KAS., Dec. 1, 1885.

Hon. Secretary of State Board of Health, Topeka, Kansas—DEAR SIR: Please find inclosed a list of physicians and accoucheurs registered in this county. Regarding vaccinations, we cannot get a definite report. In our city school there are seven hundred in attendance. Six hundred of these have been vaccinated, and about one-third of these within the past three months. At present we cannot give account of the county schools, as we could not get a satisfactory report. People in this vicinity are not opposed to the vaccination rule. Yours, etc., GUIBOR & O'BRIEN.

ELK CITY, MONTGOMERY COUNTY, KAS., Dec. 4, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas: In compliance with the law, I beg to submit to you this my first report.

I was elected county health officer for this (Montgomery) county November 6, 1885; immediately I notified your office of the fact, and caused notice of rule No. 24 of Kansas State Board of Health, together with the order for vaccination, to be published in the twelve weekly papers published in this county; also a card to physicians and midwives urging the importance of an immediate compliance with the law. I also caused to be published your correspondence with the Attorney General of the State and the Superintendent of Public Instruction. I also had published the powers and duties of local boards of health, and had them mailed to all the physicians and school officers in the county so far as I could learn their address.

I have also corresponded with the county superintendent of schools; as a result, he has notified the several schools in the county that the law relative to vaccination must be complied with, and I think in thirty days more all children of school age will have been vaccinated, or at least an effort made to have the order carried out. Some physicians write me that parents refuse to have their children vaccinated, but all urge the importance of the coming session of the Legislature making it absolutely compulsory.

I cannot speak in too high terms of our county commissioners and county clerk for the prompt action in putting our county in the best sanitary condition possible. They are working with a will in the matter. The county clerk reports to me to-day that forty-five physicians and midwives have registered, as follows: Regulars twenty-seven, eclectic seven, homeopath three, physio-medico three; and five not giving the school, ten do not give the date of graduation (if graduates.) There are probably fifteen or twenty prac-

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ticing physicians in the county who refuse to register, or pay any regard to the law.

We have had no epidemics of any character in the county during the year; neither have we been visited by endemics in any serious form. During the present year the lowlands of our county were overflowed twice, in May and September, yet there has not been a year for sixteen that so few cases of malaria have occurred. The general health of the county for the year past has been good—above the average year. Owing to the limited time since my election I have not gathered statistics as I would have done if I had longer than three weeks in which to work. I would suggest that our Legislature be asked to make the laws relating to the practice of health and sanitary matters *more positive*, and to provide books and compensation for keeping our county records of deaths, births and other matters pertaining to the health and sanitary use to the State, so that they will be of practical use to the State. We have no municipal boards of health in our county. To sum up my experience in the limited time I have acted in the capacity of county health officer, I find the mass of the people approve of the law and the rules of the State Board, and the educated professional practitioners give it their unqualified support. Respectfully yours,

W. W. WOODRING, M. D., *Health Officer.*

COUNCIL GROVE, MORRIS COUNTY, KAS., Dec. 15, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR DOCTOR: For several weeks I have been trying to get enough information to make some show for a report, but as yet have not succeeded. For some unaccountable reason our county clerk used two sheets for registration, and allowed one of the editors here to take them to his office to publish the names; and they destroyed one of them, saying they did not know they were of any value. There has been no notice taken of the vaccination rule. I send you to-day a copy of the registration as complete as possible.

Yours truly, D. H. PAINTER, *Health Officer.*

CENTRALIA, NEMAHA COUNTY, KAS., Dec. 12, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR DOCTOR: I herewith submit my report for the county of Nemaha. The health of the county has been generally good, with a few sporadic cases of catarrhal diphtheria and a few mild cases of scarlet fever, with the exception of the town of Corning, where a severe epidemic of typho-malarial fever, or typhoid fever with malarial complications, has prevailed.

Dr. Thompson makes the following report: "Since August first there have been twenty-four cases, out of a population of about three hundred, with three deaths. No new cases for the last twenty days. My colleague, Dr. Magil, is down now with this fever, having been sick for something over three weeks. It commenced with all the symptoms of typhoid fever the first week, feeling of general malaria, bowels constipated or alternating diarrhea, epis-

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taxis in some cases, and iliac tenderness sometimes extending all over the bowels, and quite often pain and soreness in all the joints for awhile. By the second week the temperature reaches 103 to 105, with great prostration, anorexia, thirst, etc., continuing from 14 to 48 days; in two cases only breaking up in 14 days, and in two continuing 48 days. Hemorrhage of the bowels took place in about 16 per cent., proving fatal in one case, or seemed to be the immediate cause of death." I saw many of the cases in consultation, and we tried to ascertain the probable cause, which was undoubtedly foul drinking-water. The town itself is situated on a high divide; a kind of water-shed, streams flowing from it east, west, north, and south. The town is comparatively new. Wells are scarce, and the town well was so situated that surface-water could readily find its way into it; it is no longer used for domestic purposes.

I have distributed documents to all the physicians and ministers of the county, but did not have sufficient for all the justices of the peace.

Physicians, the board of county commissioners and the people generally approve the acts of the State Board of Health, and are willing to coöperate with the local board to enforce the laws. An epidemic of hog cholera has prevailed in the county, and so many dead hogs were left exposed that the county attorney and sheriff were compelled to issue an order for the disposal of the carcasses.

Total number physicians in county, 32; total number physicians registered December 2d, 31; total number physicians not registered, (absent from home,) 1. I have no means of knowing the number of women who act as midwives, and are entitled to register; many claiming they only act as neighbors.

Total number of births reported, 46; total number of deaths reported, 12. The rule requiring all reports of marriages, births, deaths, etc., to be sent to the county clerk, instead of as now to the local health office, may account for the negligence in some cases. Besides, physicians do not always have their blanks with them at births, and are not generally present at deaths. Many cases being miles in the country, it takes time to complete the returns.

There is no excuse for neglect in making returns of marriage certificates, and the law should be enforced.

Consultation with physicians and school board made it manifest that an attempt to enforce the vaccination rule at present would end in failure. Therefore no attempt was made.

Number of children of school age in county according to county superintendent's last report: Males, 3,392; females, 3,229; total, 6,621.

In submitting my report I am aware of the imperfections and lack of details. But the work is new to all, and further knowledge and better appreciation of the work will enable us to make a better showing next year.

I would suggest that a carefully-written article on vaccination, generally distributed, would be of great benefit.

A. J. BEST, M. D., *Health Officer.*

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NORTON, NORTON COUNTY, Dec. 1, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR SIR: In making my first annual report, I shall have to make it mostly from memory, as there have been no records kept heretofore to refer to. Therefore it will be rather unsatisfactory. I will not confine myself to the present year, but will go back where it may be of interest to do so.

Among the non-contagious diseases which have prevailed the most during the past two years is malarial fever. Previous to that time, their appearance was less frequent than now. I believe that their increase is due to a greater humidity of the atmosphere and soil in consequence of a greater rainfall in this part of the State for the past two years than has ever been known before, together with an increase in the average of prairie land broken. Intermitting fevers here are not well marked; they are more or less blended with remittent type of malarial fevers, which, by the way, constitute the greater portion of the fevers, although during the latter part of August, September and October of the present year they took on a typhoid type, which constituted typho-malarial fever. In some cases the malarial influence predominated, while in others the typhoid element was the most prominent feature of the disease. It has been my observation during the summer and fall, when persons who lived in sod houses were attacked with this fever, where there was poor or no ventilation, it took on more of the typhoid type. Three cases assumed the true typhoid fever, and proved fatal, in consequence of brain complications. The sod and dirt of which so many houses are built in western Kansas has been so thoroughly saturated with water in consequence of the abundance of rain, that they have become damp and musty, sufficient to spread the germs of zymotic diseases. Thus we can readily see how easy it would be for a mild case of typho-malarial fever, on being confined within the walls of one of those houses with no ventilation, to be converted into genuine typhoid fever, and in fact in all zymotic diseases the danger to life would be greatly increased.

DISEASES OF AIR PASSAGES.—Acute bronchitis prevailed quite extensively here last winter among children. I cannot recall to mind any deaths from it.

PHTHISIS PULMONALIS.—I speak of consumption in this connection, because of the climatic influence here which has been so beneficial to persons having this dreaded disease coming from the East in restoring them to health. Owing to the altitude, consumption very seldom originates in this part of the State. The elevation here, which is on the line of the one-hundredth meridian, is about 2,500 feet. This is of course sufficient to work a decided improvement in persons suffering with such a flattering disease as this. I have known of patients being entirely cured by coming to this climate when their disease was in a primary stage; but others came when the disease had passed that stage, and their lives were prolonged but they were not cured. I have known of but one case of consumption that originated here, in over four years.

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ASTHMA.—The causes which are so prolific in producing asthma in the East are unknown here. The cases which have come under my notice were cases that came from the East for the purpose of improving their health. In a few months after their enjoying this climate their asthma had left them.

Rheumatism is now and then met with here, but to no great extent.

Diarrhea and dysentery occur now and then, but nothing alarming results from them.

Cholera infantum prevailed quite extensively. I am unable to give the number of deaths from it, although there were some.

CONTAGIOUS DISEASES.—Typhoid fever I will not mention under this head, because when speaking of typho-malarial fever I said all there was to be said on the subject.

DIPHTHERIA.—Diphtheria has occurred here from time to time for the past six or seven years. In some of its outbreaks it has been quite fatal. It generally is confined to localities and dwellings where the sanitary conditions are bad. So far as I am able to learn, the deaths from diphtheria occurred in families who lived in sod and stone houses. I have only heard of six deaths from this disease—three from blood-poisoning, and three from laryngial complications.

ERUPTIVE FEVERS.—Under this head, scarlet fever takes the front rank here. Four years ago it prevailed as an epidemic, and in some cases it was quite fatal. One family lost five children from it. I think they died from twenty-four to forty-eight hours after they were attacked. It has not appeared any during the past year.

There has been, I am told, a few cases of measles in this vicinity this fall, but I think no deaths have resulted.

Norton county has 3,286 school children. The number vaccinated prior to the passage of the vaccination rule, I have not been able to find out as yet, but will try to do so through the aid of the county superintendent this winter. As yet there have not been any vaccinated since October 1st. The people will have to be educated in this matter, so they will understand the necessity of having their children vaccinated. This matter I will attend to through the county papers.

The sanitary work in Norton city is well appreciated by its people, and they are all doing what they can toward improving the health of the community in the way of drainage and the removal of nuisances, which have heretofore been very annoying to the public. The citizens of the entire county, I am quite sure, all think well of the sanitary cause.

Number of physicians registered, 11; number of midwives registered, 5; total 16. I think all those who intend to practice in this county have registered. Respectfully, E. M. TURNER, M. D., *Health Officer.*

BURLINGAME, OSAGE COUNTY, KAS., Dec. 31, 1885.

To the Secretary State Board of Health: Inclosed is a report so far as received from physicians, midwives, judges, justices of peace and ministers of

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gospel for the months of October, November, and December. This has been delayed until to-day, that my report shall not be *nil*. Blanks, circulars and other documents have been sent to all registered physicians, also to all justices of peace, as well as to all ministers of the gospel I could learn of.

My report is meager in more respects than the essential. Our county commissioners, county superintendent and school officers have manifested an apathy as to the public weal little compatible with their respective positions. As to our physicians, I scarce know what to say. Their indifference and inattention to the law must be ascribed in many instances to ignorance; many have not seen the law, and couch themselves behind the excuse that the rules and regulations of the State Board were all there was of the law, and that the county attorney says it is only advisory, not mandatory. This will not seem strange when we reflect that too many are practicing or pretending to do so that have no acquirements other than those furnished by some "domestic medicine," patent-medicine almanac, and yellow-backed literature. I would advise that a copy of the law be sent to every registered physician and midwife. I am more surprised that ministers of the gospel, who clamor so much for the enforcement of one law, should be lax in all others. No mention in the law is made of judges, justices of the peace, or ministers of the gospel, and if they have read the law they do not care to fill out blank returns without compensation. All must admit that the law is defective—yet a good starting-point; needs remodeling or amending, and the rules and regulations as well as the forms to be made in strict conformity. This done, there will be a more cheerful compliance. Many physicians, ministers, judges and justices are like the rest of mankind, "have no check but human law."

Osage county has a population of about 34,000, and about 60 so-called physicians, 53 of whom are registered incomplete as to form—one physician to about every 566 of population. Of those registered, only thirteen report deaths (21), yet the undertakers of two towns in our county report 53 burials for the three months included in this report. Twenty physicians for the same time report 83 births, (rather an unusual disproportion between the two;) two report 2 still-births; and one justice of the peace reports one marriage.

The health of Osage county for the past three months has been good—no epidemic of any character that I can learn of.

The resolution of the State Board relating to vaccination has not been heeded by any school district in the county, so far as I am able to learn, nor has there been any effort on the part of the county superintendent or any of the district officers to enforce the rule.

Three or four weeks since, I wrote requesting the county superintendent to give me a statement of the number of school children in the county. He has not replied; probably thought he wasn't compelled to do so.

Respectfully, etc., JAMES HALLER, M.D., *Health Officer*.

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OSBORNE, OSBORNE COUNTY, KAS., Dec. 30, 1885.

To the Honorable the State Board of Health of Kansas—GENTLEMEN: I have the honor to report that I obeyed the instructions of the State Board of Health, and have, so far as practicable, enforced the rules given me by that honorable body.

The towns of Downs, Osborne and Alton were carefully inspected. The sanitary condition of Downs and Osborne was comparatively good, they being incorporated towns; while at Alton I found imperfectly constructed privies, pig pens, slaughter houses reeking with filth and putrid offal. The people were stubborn in many cases, and refused to comply with the law, but eventually complied with the rules, and disinfected when notice was given them to do so. To all complaints I have given my immediate attention, and have abated twenty-eight nuisances of various character.

There have been but four cases of scarlet fever; these were of a mild type, were promptly quarantined, and no epidemic resulted therefrom. There have been no other cases of infectious or contagious diseases in the county.

The rule requiring the pupils attending the public schools to be vaccinated has not been so generally complied with as is desirable, but by persuasion, etc., 1,758 children have been vaccinated, eighty-seven per cent. successfully. This is over fifty per cent. of the total number of children attending the public schools of the county.

So far as I can learn, the inclosed list of physicians and midwives is correct, and embraces all who are practicing in the county. All blanks, printed matter, etc., have been distributed to those entitled to receive the same.

No incorporated village in Osborne county has a board of health, and in all cases the county health officer has been called on to act whenever a nuisance was to be abated.

Your rule for vaccination has caused considerable dissatisfaction, but at present all hands seem anxious for its thorough enforcement.

Taking it all in all, the workings of the new health law have been as satisfactory as could be expected under the circumstances, and the longer the law is in existence the more complete and satisfactory will be its results. Though still incomplete in many of its requirements, yet I believe it has been of great benefit to the inhabitants of Osborne county.

I have the honor to be, gentlemen, yours very respectfully,

F. A. HALL, M. D., *Health Officer.*

MARVIN, PHILLIPS COUNTY, KAS., Dec. 3, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR DOCTOR: Referring to yours of September 10, 1885, I addressed letters to the physicians in parts of the county where my practice does not extend, inquiring as to the prevalence of any epidemic or endemic, its name, duration, lightness or severity, which might have occurred in their practice during the year. From the northwest portion of the county, Dr. A. Bennie

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writes me that his locality is almost free from any endemic and entirely so from epidemic diseases; has had a few cases of a mild type of dysentery, confined to the river bottom, no cases having occurred on the uplands; durations of sickness, four to ten days; no deaths. From the southwest portion of the county, Dr. T. C. Lawrence writes: "I am pleased to say to you that we have had no disease which has assumed an epidemic form within the last five years; have had isolated cases of dysentery, diphtheria, scarlet fever, measles, erysipelas, and whooping-cough, none assuming an epidemic form." Dr. C. S. Knight, Kirwin, says he has had a few cases of dysentery and typho-malarial fever (continued remittent), and a few cases of whooping-cough.

In regard to the outbreak of diphtheria in Kirwin, referred to in former communications to your office, Dr. C. S. Knight has given me the following history. Case 1: Was called October 16, 1885, to see a son of W. Wyrrel, aged six years, who had been sent home from school sick the day before; found him suffering with an attack of malignant diphtheria; died on the 18th. A child who sat with him at school died on the 15th of October, of what the attending physician called membraneous croup.

Case 2: October 17, was called to see a daughter of W. A. Lindsy, age 13 years; found her suffering with an attack of malignant diphtheria; was attacked about the 12th, and died on the 21st.

Case 3: October 24, was called to see a daughter of S. J. Hartmen, suffering with diphtheria. This child had also attended school; case ended in recovery. Although case 2 had not attended school, the younger members of the family had, and complained of sore throat, but of so mild a form that attention had been given them. No doubt it was diphtheritic.

The sanitary relations of these cases were all good; some were excellent. Diphtheria had occurred in the house where case 2 was found, about a year since; but precautions were taken to fumigate and disinfect the premises, and it was thought thoroughly.

On the 11th of November I learned through Dr. Ensign, of Kirwin, that there was a child of Mrs. Sprathing's suffering with diphtheria. This child died about 2 o'clock on the day I learned of its illness. He had also attended school. On the 15th of November I learned of another case in the family of Mr. Lindsy, whose child had attended school some weeks previous. I was informed by the mother of this last case that they obtained their water from the creamery well, and that the schools obtained their supply from a well near the railroad track, one at the Warner House, and one at the creamery well. Now the fact that all the victims of the outbreak had either attended school or had come in direct contact with those who had, cast suspicion upon the school premises and the source of their water supply, and I urged my suspicion upon the school board and physicians of the city, who, with one or two exceptions, agreed with me. Accordingly, on the 15th of November U. H. Noll and U. E. Rowe, who are members of the school board, and Drs. C. S. Knight, W. D. Jenkins and myself, made a tour of

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inspection about the school house and grounds, and the creamery premises, and found the following condition of affairs: The school house, which is built upon a slight elevation, in the western suburbs of the city, is of stone, well built, clean, dry, well lighted, well heated, but rather poorly ventilated. About thirty feet west of the school house are the privies, with vaults open, shallow, and offensive. About one hundred feet west, extending to the north of the school house, is the stock corral of the creamery. Next comes the buttermilk cistern, ice-house, and creamery. A covered conductor leads from the creamery to the cistern. North, and extending to the west of the school house and creamery, is a slough, converted into a pool by the grading of a street on the east. This slough receives the surplus rainfall from the adjacent hills, wash-water from the creamery, and overflow from the stock corral. The surface of the corral slopes to the northwest; on the west side of it, and near to it, at the lowest point of ground, is the well referred to above as the creamery well. This well is bored twenty feet deep and two inches in diameter. About, and near to it, are hog-wallows and the droppings of the horses, cattle and hogs in the corral. The location and condition of the vaults of the school-house privies, and the porous nature of the soil, would not exclude drainage from the vaults being added to that of the corral, and reaching the water of the well.

The above conditions, added to the fact that the first cases of diphtheria which occurred in last year's outbreak occurred at the creamery, were sufficient evidence in the judgment of all present, to condemn the water of the well at the corral as unfit for use, and to forbid its being used. There was nothing suspicious about the surroundings of the other two wells referred to above. The school board agreed to treat the contents of the old vaults with chloride of lime, dig new ones, fumigate the school house with sulphur, and make an effort to have the corral removed beyond the city limits.

No more cases have been reported to me up to date. I subsequently examined a sample of water which I obtained from the well. Found no trace of organic matter. Chlorides were present, and also a trace of nitrates, showing the presence of the product of decomposed organic matter, rendering the water of the well the possible source of infection, but in my judgment not necessarily so. My experience with diphtheria has convinced me that its germs are so tenacious, that when once present they may remain latent for years, until circumstances favoring their activity are present, or until they have been brought in contact with some chemical which destroys them; and the probability of their coming in contact with such chemicals when ordinarily exposed about our dwellings, is limited indeed, especially in a climate so dry as ours.

I was called to see a case of diphtheria in Graham county, about forty-five miles west from Kirwin. The subject of this attack was eleven years of age, and had been a passenger on the Missouri Pacific Railroad from Atchison to Edmonds two or three days previous to being attacked.

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In reference to yours of November 10: The register has already been forwarded to your office. Two physicians who did not register are now out of the county, and, I understand, are making preparations to remove from it. Of the two remaining, one has confined himself to a drug store, and the other's practice is almost *nil.*

The vaccination resolution has met with much opposition. A non-compliance with the resolution upon the part of some is from negligence, some from seeming horror of the operation; and as its alleged effects, all manner of diseases are held up as sequels. In the villages it has been reasonably well observed; in the country districts but little vaccination has been done this year. My facilities for gathering data upon the subject have been very meager, because of the negligence of parties upon whom I ought to be able to depend. The last enumeration (July) gives Phillips county a scholastic population of 4,058. Of this number, according to the data which I have been able to gather, about thirty per cent. were vaccinated previous to 1875, about fifteen per cent. in 1885, leaving at least one-half of all unprotected.

The general health of our county, though always good, has been exceptionally so this year; no endemic or epidemic having acquired any magnitude. Of dysentery referred to above, not more than four or five per 1,000 inhabitants were attacked. Of typho-malarial fever not more than eight or ten per 1,000 inhabitants were attacked this year. Of diphtheria only about eight cases have occurred in a population of 11,000. All other diseases which have occurred among us were such as are due to errors in diet, exposure, accident, development, or hereditary taint. The county commissioners are in full accord with the State Board. Our people are generally intelligent; some of course will have to be educated as to the importance of an observance of sanitary laws; but if such circumstances as require the full operation of the rules, regulations and resolutions of the State Board should arise, a minimum amount of opposition would be met.

My work as health officer has consisted principally of getting the rules and regulations before the people, and making known to them that they are in operation. A vast majority of the people concede their importance, but because of the absence of circumstances requiring their active operation, indifference takes the place of activity in regard to them.

Respectfully, ISAIAH MILEY, M.D., *Health Officer.*

WESTMORELAND, POTTAWATOMIE COUNTY, KAS., Dec. 1, 1885.

J. W. Redden, M. D., Secretary State Board of Health, Topeka, Kansas—DEAR DOCTOR: In reply to circular of November 16th, would state that I have, as far as I could, complied with previous circulars issued from your office, and have given through the press of our county the necessary public instructions. My report will of necessity be meager, owing to the lack of interest manifested by our county commissioners and the medical profession generally.

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As a rule the doctors have tried to comply with the law regarding registration; there they have evidently thought their duty ceased. Out of a list of 35 physicians and 2 midwives, but 13 have complied with the requirements of the State Board of Health regarding reports of births, deaths, &c., &c.

Vaccination seems to be the lost art; how is it to be enforced?

Registered physicians, 35; midwives, 2; total, 37.

About the number not registered, 10. Schools of medicine: Allopathic, 30; eclectic, 3; homeopathic, 1; scientific, 1; total, 35; midwives, 2; grand total 37.

Nativity of physicians: Natives, 32; foreign, 3. Midwives: Native, 1; foreign, 1; total, 2. Total, 37.

Nativity of physicians: Ohio, 7; Virginia, 2; Pennsylvania, 4; Kentucky, 1; New York, 3; Illinois, 5; Indiana, 6; Tennessee, 1; Michigan, 1; South Carolina, 1—32. Foreign: Holland, 1; Scotland, 1; Germany, 1—3. Midwives: Native, 1; foreign, 1—2. Total, 37.

Births to December 1st: Males, 13; females, 18; total, 31. Still-births, 3.

Marriages, 7.

Deaths to December 1st: Adults, 5; children, 6; total, 11.

Our county has been fortunately free for the past year from any epidemic. Measles and diphtheria in some localities have been prevalent, but the death list is below average.

Doctor, this is the very best I can do for you; my office, being new, is looked upon by the masses as a sinecure.

Respectfully yours, &c., C. A. SKENE, *Health Officer.*

IUKA, PRATT COUNTY, KAS., Dec. 5, 1885.

J. W. REDDEN, M.D.: Sir, according to the instructions from you, it becomes my duty to report the health of the county for the year, and disposition of the people regarding the rules of the State Board; also the encouragement or apathy of the commissioners.

1. The health of the county for the last twelve months has been excellent. There have been neither epidemics nor endemics.

2. There has been no attention paid to the vaccination rule, and in my opinion will not be until it is made obligatory. I called the attention of the county superintendent to the matter, and the attention of the public through the press.

3. The approximate number of children in public schools of the county is about 2,500.

4. The attitude of the commissioners seems to be one of apathy; perhaps on account of the state of society more than anything else, and the excitement caused by the contest over local matters. Some of the physicians seemed to be even opposed to registration, and one of them told me that several of them thought of ignoring the law, but they finally concluded not

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to. I have distributed the documents sent me by you, and done all that I could to further the execution of the law during the short time I have been health officer. Accompanying this you will find a correct and certified copy of the registration. There may be others, but I do not know of them.

It is my intention at the next meeting of the Board of Commissioners to send in my resignation, the duties being such that I do not care to attend to them, on account of the apathy existing in regard to the law. The feeling between members of the profession on account of local troubles, has been such that we have not yet been able to organize a medical society embracing the graduates even.

Respectfully, THOMAS MCELVAIN, M.D., *Health Officer.*

BELLEVILLE, REPUBLIC COUNTY, KAS., Dec. 10, 1885.

Secretary State Board of Health: Inclosed is copy of the register of physicians and midwives for Republic county. It is complete so far as I can find out, although it may be that there are some midwives not on the list.

The state of health in this county is very good. During the fall there were a number of cases of malarial fever, also some of typhoid, but now there are no diseases prevalent except those from exposure and chronic troubles. There have been no epidemics during this year. There have been cases of diphtheria here and there, also some genuine cases of scarlet fever, but never so that it could be called an epidemic or an endemic.

I have never distributed any vaccination blanks to physicians, as I did not know just what was to be done with them. The commissioners were more opposed to the vaccination measure than all the rest, so I thought it best to wait. There are about 5,000 school children in Republic county.

The people are generally in favor of the measures of the State Board as far as their attention has been called to the matter, and they have given expression to their views. The county commissioners refused at their meeting in October to adopt the rules and regulations of the State Board. Their reason was that they had not considered the matter, and thought the county might be put to considerable expense; and besides they were afraid some of the measures would meet with opposition among the people. In talking with them at different times since the meeting, I think there is no doubt of their adoption at the meeting in January.

Very truly yours, C. M. ARBUTHNOT, M.D., *Health Officer.*

LYONS, RICE COUNTY, KAS., Dec. 4, 1885.

J. W. Redden, M.D., Secretary State Board of Health—DEAR SIR: In compliance with your request, I submit the following report as indicated in circular of November 16th, 1885.

Public notice was given, November 21st, that all registrations and vaccinations must close on December 1st. I inclose copy of registration to December 1st. Vaccination has been enforced only in Lyons and Little River schools. Lyons: Certificates issued, 214; total attendance, 307. The

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majority of remainder have been vaccinated, but at a late day, so that physicians are holding the certificates to determine the result. Little River: Attendance, 72; vaccination certificates, 54. Could not report number of primary and secondary vaccinations, as teachers issued their own blanks, and many were vaccinated before blanks of State Board arrived. There is great apathy among county schools. Have failed to receive reports from teachers regarding number of pupils and observance of vaccination rules. Will report later if desired by you.

Registration has been well complied with, there being probably three physicians who have not registered, and as many midwives.

The state of health for autumn months has been excellent. Typho-malarial fever which prevails is of a milder type than usual, fatal cases being few this fall. No epidemic or endemic diseases prevailing.

The county commissioners have had no regular meeting since blanks and instructions arrived, but seem dispose to do work if it is suggested to them.

I have mailed to physicians and midwives blank returns of deaths, births, still-births, and vaccination blanks; to ministers, judges and justices, marriage blanks, giving all a personal notice. Also, have distributed new blanks ordering reports of deaths, etc., to be made to county health officer instead of county clerk.

I regret that this report is so imperfect. Yours,

N. F. TERRY, M.D., *Health Officer.*

MANHATTAN, RILEY COUNTY, KAS., Dec. 1, 1885.

Hon. J. W. Redden, M. D., Secretary Kansas State Board of Health—DEAR SIR: I have the honor to submit the following report.

The health of the people in Riley county has been good during the year past. We have had neither epidemics nor endemics. Since August there has been a remarkable exemption from sickness.

No action has been taken in this county to secure compulsory vaccination, and no certificates filled out so far as I can learn; I have no way of knowing what proportion of the children have been successfully vaccinated, but from general observation am satisfied the percentage of unvaccinated is small. The population of school age is: Males, 2,437; females, 2,202; total, 4,639.

People generally have given but little attention to "rules, regulations and resolutions" of the State Board, and the county officials generally appear to think the matter of little importance. I have not met with the commissioners, but hope to discuss some questions with that body in January.

There is a disposition on the part of some irregular practitioners to resist the rule to register, and to disregard the law requiring reports of deaths and births. The work accomplished is not great. The blanks have been distributed.

PHYSICIANS NOT REGISTERED.—J. H. Lee, L. J. Lyman, Manhattan;

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E. Edgerton, Mrs. J. J. Miller, Dr. F. M. Pepper, J. Mayfield, M. D., Randolph; Dr. Jones, Dr. Randolph, Mayday; J. C. Crans, M. D., Dr. Thomas, H. A. Mieir, M. D., Leonardville; Dr. Chandler, Ogden.

C. F. LITTLE, M. D., *Health Officer.*

STOCKTON, ROOKS COUNTY, KAS., Dec. 1, 1885.

J. W. Redden, M. D., Topeka, Kansas—DEAR SIR: Yours received, and contents noted. Have just given public notice in regard to registration and reports of deaths and births. The county clerk informs me that he thinks the physicians and midwives are reporting deaths, births, &c., in good shape, and I think so myself.

I think all of the physicians have registered, and nearly, if not all, of the midwives. Only one physician has given me any trouble, and I have at last convinced him that it is his duty to comply with law. Have had one case where women (not registered) have attended confinement; case reported, and I am hunting it up and will see that the parties are brought to time. I am looking carefully after that portion of the law, and I think it can be made effective. I see that the statute in the section that refers to offenders speaks only of physicians. How can we make that refer to midwives? Probably can scare them into submission, but county attorney says midwives are not included. What is your opinion?

The probate judge is in sympathy with the law, and I think is making the marriage reports effective.

As to vaccination, the county board would not consent to use any compulsory measures; and the general opinion is, among the people, that it cannot be enforced. I have vaccinated nearly all who have been vaccinated in the county. Probably fifty would cover the entire number. The county superintendent informs me that we have about 3,000 school children in the county.

I wrote you a history of an epidemic of scarlatina some time ago. It is the only epidemic we had this year. The general health of the people is very good at present; in fact, is is distressingly healthy.

In all save the vaccination rule, the people generally seem disposed to observe the law as well any other law. The county board throw all of the health business onto me, but seem willing to do anything that is reasonable. I have succeeded in improving the sanitary condition of our city very much, and can see beneficial effects of the law at this time. Do you know what compensation different health officers have been receiving from county boards?

I sent you a complete registration blank. I received your last circulars all right, and have mailed them to physicians and midwives.

Yours respectfully, F. ROBBINS, M. D., *Health Officer.*

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RUSSELL, RUSSELL COUNTY, KAS., Dec. 4, 1885.

J. W. Redden, Secretary State Board of Health, Topeka—DEAR DOCTOR: Eleven physicians and midwives have registered up to date, being a complete registry of the county. The health of the county is good; we have had no epidemics during the past year. There were a number of cases of dysentery during the months of July and August, several proving fatal. There were two cases of scarlet fever reported to the board of health during the last of August. I immediately instituted prompt measures to prevent its spreading. There have been no other cases reported so far.

The vaccination rule has not generally been observed outside of the city of Russell. It is very inconvenient for our country people to comply with it, owing to the distance they live from a physician. The number of school children in our county is 2,500. I am unable to give the number vaccinated under the rule, or the number previously vaccinated. I myself vaccinated about 200.

The people generally are favorable to the rules adopted by the State Board of Health. The county commissioners have taken an interest in all measures proposed to them. They have allowed the health officer one hundred dollars per year, as salary. After my appointment by the county commissioners in July, I was appointed health officer of the city. I had the city council adopt the State Board of Health rules, under which I went to work removing nuisances of all kinds. We met some opposition, but were sustained by a large majority of the people. As a rule our people are intelligent, and as soon as they understand the law there will be no trouble in enforcing sanitary measures that are reasonable and just. We have a few old "loots," and a few who think we have no right to meddle with their private affairs; but such is man—or *some* men. Take their right to grumble away from them, and life would not be worth living.

All of which is respectfully submitted.

J. W. LONG, M.D., *Health Officer.*

SALINA, SALINE COUNTY, KAS., Dec. 8, 1885.

J. W. Redden, M.D., Secretary State Board of Health, Topeka, Kansas—DEAR SIR: I have the honor to inclose you a formal report of the extent to which the present medical law of the State, enacted by the Legislature of last winter, has been made operative in the county of Saline. Inclosed you will find a copy of the registration roll of Saline county, showing 25 registered physicians, surgeons and midwives, now practicing their professions and specialties within our borders. This is, as far as our local board have been able to ascertain, the entire number now operating within the limits of Saline county. There may be some obscure individuals upon our outskirts, who profess the "healing art," but of their existence we have no certain knowledge. Should a knowledge of any, refusing to register, but continuing to practice, come to us, you, as Secretary of the State Board of Health, shall receive speedy and prompt notice.

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Under the head of epidemic or endemic diseases, I am pleased to be able to report the complete exemption of this county from these forms of disease. The soil, climate and surface drainage of the county all conspire, as far as natural conditions can, to produce this desirable result, and these advantages have been further aided by the most competent engineering skill which our growing city of Salina has been able to provide—skill that has exhausted itself in more fully elaborating the problem of superficial drainage and the perfecting of our system of sewerage. By these efforts and advantages combined, we have been able to escape the "pestilence that wasteth at noon-day," aad whose very existence is a stigma upon the civilization of the community in which it exists.

But your local board is compelled to say that all is not accomplished that should be. Our back alleys are yet incumbered with filth, and littered with rubbish. Our privies are in many cases in too close proximity to our wells of drinking-water, to be consistent with safety. The waters of our creeks and rivers are said to be subject to the most dreadful contamination. Hogs and animals dying of disease are said to be taken to our streams, and there tumbled into their waters, or remaining on their banks are swept away at high tide. They accumulate above the mill-dams of our quiet streams, and in the neighborhood of our towns and villages, and become a source of imminent danger. In the sparsely-settled condition of our country this was of small moment, but with our growing population favoring the outbreak of disease, and our increasing railroad facilities, making easy the importation of disease, it becomes a matter of the gravest importance. The chief obstacle that is believed to exist in attempting to remedy this nuisance, is found in the fact that no one can be found to present such information, positive in its nature, as will warrant the county attorney in instituting legal proceedings.

In regard to the vaccination rule of your honorable Board, we are sorry to be compelled to say that it has as yet received no attention. This feature of the health bill will, we fear, unless in the presence of an epidemic of small-pox, be treated with contempt. There are differences of opinion upon this subject among the profession that weaken the authority of the State Board to a lamentable extent. There are memories of arms with sores upon them in the past, that brought forth "fruits meet for repentance"—memories that prevent our unguided people from regarding vaccination as a "luxury," and we fear will cause a disregard of this most important feature of our sanitary law. There are enrolled in our schools about 4,476 pupils. What proportion have been successfully vaccinated we cannot know—probably but a small proportion.

In regard to the attitude of the people in relation to the State Board and their regulations, we are pleased to report that they regard them favorably, and will always declare in favor of the enforcement of law and preservation of order. You can rely upon their moral support and indorsement in

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carrying out all the provisions of the State law that have the most remote relation to the public welfare.

As no report has been received from any of the registered practitioners, I have no tabulated statements to embody in this report. Anxious to place myself, and the local board I represent, on terms of free and easy communication with your honorable State Board, I shall subscribe myself,

Fraternally yours, E. R. SWITZER, M.D., *Health Officer.*

TOPEKA, SHAWNEE COUNTY, KAS., Dec. 1, 1885.

To Dr. J. W. Redden, Secretary Kansas State Board of Health: In obedience to the requirements of section 4 of chapter 129, Laws of 1885, creating the Kansas State Board of Health, declaring that all health officers of local boards of health in the State shall transmit to the State Board of Health such sanitary information as may be useful to the people of the State, I beg to report the following since my acceptance of the office, July 1, 1885.

The time has been too short (only five months) to accomplish any very radical results, or secure any reliable statistics that would be of value to the profession or the public; but it will suffice to show you that all we have been able to do is to secure as nearly as possible complete registration of physicians and midwives, and distribution of blanks for the registration of births, deaths, and still-births.

The profession are responding very promptly to all the requirements of the law, and by another year we can have, from the present outlook, quite an array of vital statistics that will go a long way in redeeming us from the stigma that so justly rests upon us from our backwardness in this direction.

The number of registrations in the county, up to December 1st, is 107; number of regular physicians, 62; Eclectic, 18; Homeopathic, 19; Electric, 1; midwives, 7. Number of physicians in county who are graduates of some school of medicine, 90; number of non-graduates, 10. Number of colleges represented in the county, 39. The schools from which the physicians of the county graduated are: University of Pennsylvania, Philadelphia, 3; Ohio Medical College, Cincinnati, 10; Jefferson Medical College, Philadelphia, Pa., 6; College of Physicians and Surgeons, Paris, France, 1; Starling Medical College, Columbus, Ohio, 2; Columbus Medical College, Columbus, Ohio, 1; Royal College of Physicians and Surgeons, England, 1; Medical Department, University of Kansas City, 1; Hahneman Medical College, Chicago, 8; Bellevue Hospital Medical College, New York, 2; Woman's Medical College, Philadelphia, Pa., 1; College of Physicians and Surgeons, Keokuk, Iowa, 6; University of Louisville, Kentucky, 1; Eclectic Medical College, Cincinnati, Ohio, 3; Missouri Medical College, St. Louis, Mo., 1; Vienna Medical College, Austria, 1; Physio-Medical College, Cincinnati, Ohio, 2; College of Physicians and Surgeons, New York, 1; Pittsfield Medical College, Massachusetts, 1; Eclectic Medical College, Philadelphia, Pa., 1; Rush Medical College, Chicago, 5; Indiana Medical College, Indianapolis, Ind., 1; Eclectic Medical College, Chicago, 1; Maryland Medical

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Institute, Baltimore, 1; Homeopathic Medical College, St. Louis, Mo., 1; Western Homeopathic Medical College, Cleveland, Ohio, 2; College of Physicians, Kansas City, Mo., 2; Miami Medical College, Cincinnati, Ohio, 1; Berkshire Medical College, Massachusetts, 1; Cleveland Medical College, Cleveland, Ohio, 1; Medical Department University of New York, 2; Chicago Medical College, Chicago, 1; Woman's Medical College, Chicago, 1; College of Surgeons, London, England, 1; College of Physicians, St. Andrews, Aberdeen, Scotland, 1; University of Boston, Medical Department, 1; Bowdoin Medical College, Brunswick, Me., 1; McDowell Medical College, St. Louis, Mo., 1; College of Physicians and Surgeons, New York, 1. The average age of physicians in the county is forty-four years.

The vaccination rule in the city has been adhered to closely, as no children have been permitted to attend school without satisfactory evidence of vaccination. In the country, from inquiries of physicians, I think two-thirds would be a close approximate of the vaccination. I have not heard of any formidable objection to the practice of vaccination, and as a sanitary precaution I would make it compulsory over the entire State among school children. Over 2,500 deaths from small-pox have now occurred since the beginning of the epidemic in Montreal; this is equal to the natural mortality in a city the size of Montreal during an entire year, and shows better than words can tell the fearful results of fanatical opposition to vaccination. If the French-Canadians had trusted modern science, instead of resorting to their saints and superstitions, nine-tenths of the 2,500 lives lost could have been saved, and Montreal would to-day be healthy and prosperous, instead of wasted by pestilence and on the verge of ruin. Our county is illy prepared to meet an epidemic of small-pox; no pest-house, and no one whose business it is especially to look after its prevention. It is but a fair business proposition in time of peace to prepare for war. Take time, and secure a site that will not be objectionable to anyone, and build for the comfort of those afflicted under such circumstances, and thereby prevent the spread of one of the most loathsome diseases with which we have to contend. In the past few years we have had quite a considerable amount of diphtheria in our city and county. It is important to look after this disease, as it is a specific infectious and contagious disease, and the death-rate, or mortality, is greater to our people than from that of small-pox. As we do not know the etiology of diphtheria, we have some very well-grounded reasons to believe it to be due to, or at least aggravated by, dirt and filth and impure drinking-water. We hope to see the mortality from this disease diminished when the entire city is supplied with good drinking-water.

We notice that the death-rate is greater in low places and where the sanitary condition is not up to that of the well-to-do householder.

Another subject to which I would call your attention is the purity of what we eat. We have good reasons to believe that many persons are brought down to a lingering illness, nay, death, by bad provender. Our meat supply should be looked after first. But a short time since we had two families

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stricken down with trichina spiralis caused by eating diseased pork. But five of the two families had eaten the diseased meat, two of whom died after a lingering illness, leaving a motherless family; the other case, a child of five years, died of exhaustion after protracted suffering. The frequency of the different species of tænia affecting our people, both old and young, calls for some radical changes in our meat supply. I would suggest that large slaughter houses and packing houses should only be allowed to sell their goods after an examination and certificate from a practical microscopist, and thereby save the public from a large amount of suffering and financial loss by getting rid of the parasites obtained through the meat supply.

Shawnee county is situated in the third tier of counties west of the Missouri river, with an area of 558 square miles. The number of inhabitants is 67.62 to the square mile. The county is undulating, and well adapted to natural drainage; the air is dry, showing less humidity than in the Eastern States, and there are more sunny days; consequently it is practically free from malarial poisons and other diseases due to a low and flat country. We have no statistics to refer to of our county or State, but from general observation and inquiry our mortality is less from all diseases, especially pulmonary troubles, than of Eastern cities and States. We hope in the future to be able to compare statistics with our sister States, and prove that this is the place for bronchitis and incipient phthisis, where life may be prolonged many years. In conclusion it may be said, while we have not much of importance to offer you, the prospect is bright for the future.

J. P. LEWIS, M. D., *Health Officer.*

Dr. Lewis's report is accompanied by a report made to him by the superintendent of the Insane Asylum, which is as follows:

TOPEKA, KAS., Dec. 8, 1885.

J. P. Lewis, M. D., Health Officer Shawnee County—DEAR SIR: The location of the institution is very favorable and salubrious, being upon high ground, south of the Kansas river, and entirely free from any stagnant water and marshy places. The natural drainage of the Asylum site is excellent. Our buildings are of the very best character, being built of stone with hollow walls, with a high basement thoroughly cemented under the whole structure. Our high location gives us most excellent natural ventilation; and in the way of artificial ventilation, the completed buildings will have two fans, each capable of delivering to the wards 1,000 cubic feet per minute. One of these fans is now in operation for the part of the building now erected. The buildings are heated by indirect and direct steam heat, supplied with hot and cold water, bath rooms, lavatories and water closets of improved construction.

Our water supply is derived from a large well sunk in the "bottom," where we have an abundant supply of very pure water, free from organic matter, but of course somewhat charged with alkalies, as is all the water of this region. Very truly yours, B. D. EASTMAN, *Superintendent.*

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Dr. Lewis also sends report of the condition of the Reform School, made by Dr. J. B. Hibben, as follows:

J. P. Lewis, M. D., Health Officer, Shawnee County—DEAR SIR: I herewith submit my report of the sanitary condition of the Reform School, as per your request.

The State Reform School, located about two miles from the city of Topeka, I find to be in an excellent sanitary condition. There are no epidemic diseases, nor acute ailments of any character worthy of mention. The ventilation of the dormitories, however, is not up to the proper standard for such an institution, and I have made certain recommendations in this particular, which, if carried out, will remedy the defect.

I cannot close this fortunately necessarily limited report, without paying a tribute to the excellent management of the school by Dr. Buck and his excellent lady. The institution could not be more carefully conducted, and the absolute immunity from diseases is largely due to the competent Superintendent. Very truly, J. H. HIBBEN, M. D.,

Physician Reform School.

KENNETH, SHERIDAN COUNTY, Dec. 10, 1885.

DEAR DOCTOR: Yours of the 7th is received. I have distributed rules and regulations. I have had them published in our county paper this week, and will send you a copy; also the vaccination rules and registration. I received blanks for births, still-births, deaths, and marriages, and vaccination certificates. I will do all in my power to comply with your rules. We have no city board in our county. We have not had any epidemics or endemics here. Our commissioners did not comply with your demands in time for me to furnish you with a report by the 15th of December.

Yours truly, D. M. FREEMAN, M. D., *Health Officer.*

WICHITA, SEDGWICK COUNTY, Dec. 5, 1885.

J. W. Redden, M. D.—DEAR DOCTOR: I herewith send a copy of registration of physicians and midwives as received from the county clerk. As near as I can estimate, the number who have failed to register up to date is from 25 to 30 physicians and 10 to 15 midwives.

In reference to the health of county, after having inquired of physicians in various parts of the county and in the city, I find the general report of *all* to be that the health has been good during the past season; less malarial sickness than in the previous two or three years; no epidemics or endemics at all. I am unable to get at any accurate death report of the county, as there seems to be no systematic method yet in vogue.

The approximate number of school children, obtained from county superintendent, is 11,200. There has been no systematic vaccination adopted or done. I gave to each physician blank certificates and notified the county superintendent, but no action at all was taken and no request from teachers and scholars for such; and hence I can give no report on vaccination. In

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fact, all matters pertaining to the work of the State Board of Health is so recent (60 to 90 days) that but little could be accomplished. The county commissioners seem to encourage the work, and give me liberty to publish notices and furnish means to circulate all printed matter pertaining to Board, and compensate me well in a satisfactory manner for my time in attending to the same.

The circulars sent me have been distributed. I presume it is only necessary for me to preserve them.

The vaccination regulation, I think, should in some way be attended to. It is difficult to enforce it, as many oppose it. Will the coming Legislature have anything to do with this act—towards legalizing the rules and regulations of State Board of Health? We have some parties who are not disposed to comply with the law at all, claiming that nothing is binding, and that without compensation no reports will be made.

I have in the foregoing written you all of importance at the time. In the registry, the physicians in sixty to seventy per cent. neglected to give nativity. Hence I omit it all.

Very respectfully, A. M. F. McCollough, M.D., *Health Officer.*

St. John, Stafford County, Dec. 8, 1885.

J. W. Redden, M. D., Secretary State Board of Health—Dear Sir: I have the honor to submit to you the following, my first annual statement.

We have, as shown by the accompanying register, 14 physicians and 4 midwives. The physicians of the county have all registered, but a number of women who pass as midwives have failed to comply—probably five or six, of whom none are graduates.

The number of school children reported to superintendent is 2,170; approximate number at present, 2,500. The observance of the vaccination rule has been enforced by directors in our towns and the districts contiguous, but in the more remote districts it has been but partially observed; probably no more than one-half have complied with the order in the outlying districts. Approximating about one-half of the children were previously vaccinated, one-fourth since the order, and about one-fourth the remainder unvaccinated.

We have had neither epidemics nor endemics during the present year. There have been six or seven cases of true typhoid fever; not more than the same number of diphtheria, or scarlet fever, or measles reported; no small-pox. Our prevailing diseases result from taking cold and exposure. Have a number of cases of pneumonia and bronchitis. We have no malaria except a few cases of imported lingering ague. You will see the health of our county has been excellent for the past year.

The disposition of the people as a rule is to encourage the observance of the rules of the State Board, and the county commissioners are interested in the work.

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My work as county health officer has necessarily been limited, owing to the general health of the people for the past year, and the absence of epidemics.

If in my report I have omitted anything that would further aid you, let me know, and I will endeavor to give you all assistance or information possible. Yours respectfully,

C. M. MAXFIELD, M. D., *Health Officer.*

WELLINGTON, SUMNER COUNTY, KAS., Dec. 20, 1886.

J. W. Redden, M. D., Topeka, Kansas—DEAR SIR: Your letter asking me to hand in a report was mislaid, and with it all dates mentioned. If I am too early or too late, I sincerely ask your pardon. As for a report, there is little or none to make. Only four physicians have registered, and to them have been given a set of blanks. The health of the community is or has been good. There have been no epidemics, and no cases of contagious diseases, with the exception of a few cases of whooping-cough. Many of the physicians refuse to register, as they say it is not compulsory; what can I do under the circumstances? If I have neglected anything, please let me know. Very truly yours, JNO. B. WOOD, M.D., *Health Officer.*

ALMA, WABAUNSEE COUNTY, KAS., Dec. 15, 1886.

Secretary State Board of Health, Topeka, Kansas—DEAR SIR: I herewith inclose duplicate register of physicians and accoucheurs, taken from the original on file in the clerk's office in this county. No return has yet been made of the deaths, births, or marriages, nor of the sanitary condition of the county. I have distributed the forms and circulars sent by the State Board of Health to those entitled to the same. I am awaiting returns on the sanitary condition of this county, progress of vaccination, etc., to enable me to make report of the same. A compliance with the rules and regulations of the State Board of Health will, I think, meet with cheerful indorsement, when properly understood. Respectfully yours,

NATHAN HUGHES, M.D., *Health Officer.*

WASHINGTON, WASHINGTON COUNTY, KAS., Dec. 1, 1885.

To the Secretary State Board of Health, J. W. Redden—SIR: While a majority of our physicians have responded promptly to registration, there are a few left out yet, notwithstanding I have notified them by letter and printed circulars. I shall endeavor to see them personally, so as to complete the work.

In Washington county a large majority of the children have been vaccinated; still I have conferred with the county superintendent of schools, who will aid me in my efforts, recommending to the various school boards the necessity of the same to protect them from variola or small-pox, which is liable at any time to reach the people over the railroad lines of travel that pass through our county. At the same time I shall endeavor to ascer-

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tain the number of children in each school district not protected by vaccination, as well as use my personal influence to secure the enforcement of the law.

The most important sanitary measure in Washington county consists in the enforcement of the law with regard to dead animals. Within the past year the hog cholera (so called) has been prevalent, and thousands of dead hogs have been left unburied on the prairie or thrown into the streams, whose waters have carried the germs of this disease to every stock-yard along the streams. It is so infectious that it is even carried on the clothes or shoes, or by dogs, from one stock-yard to another. At shipping points it is still worse, and the hogs brought to market become the nucleus from which it spreads. Again, as the streams overflow, and the ice breaks up in the spring with warm weather, the putrid carcasses are carried down the streams, and are left in the drifts on the bank to decompose. In some instances they have been gathered up and rendered into oil, and put on the market, the refuse being thrown on the soil as a fertilizer. The winds waft these decomposing, noxious gases or vapors all over the country, intensifying the malignancy of all diseases. This condition of things has poisoned the waters of the streams, and the organic matter locked up in the ice from these streams is peddled out by the pound in our cities, to the detriment of all who use it. (Even under the common law of England, the above was a serious offense, punishable by both fine and imprisonment.) Exposure to this animal miasma has, I think, been in part the cause of typhoid fever this year, and especially to those of feeble vitality. It has been endemic this year, and unusually severe, more especially as it is a disease of rare occurrence in this county. Influenza of a mild type has been quite prevalent during the fall and winter months. Dysentery was sporadic in the early part of summer, but yielded readily to appropriate treatment.

Thousands of dollars have been lost to the farmers and citizens of this county through individual neglect of sanitary measures, and stringent measures will have to be taken to prevent the sale of hogs and cattle when they are diseased or are known to show signs of hog cholera or other epidemic diseases. It is my design to recommend to our board of commissioners the issuing of an order to the township trustees, by and with the advice of the county attorney, to take cognizance of all nuisances within mentioned, and especially with reference to dead animals, prosecuting all violations of the same.

In the within report I have not entered into detail with reference to the treatment of the diseases mentioned, or the sanitary or hygienic measures that every intelligent and successful physician must use in his treatment; and I hope that no local jealousies will arise in any locality in the State between the representatives of the different schools of medicine so as to mar in any way the scientific and sanitary work recommended by the State Board of Health and designed by our Legislature to be *pro bono publico.*

Respectfully submitted.

CHARLES WILLIAMSON, M.D., *Health Officer.*

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FREDONIA, WILSON COUNTY, KAS., Dec. 6, 1885.

To the State Board of Health, J. W. Redden, M. D., Secretary, Topeka, Kas.—DEAR SIR: I have the honor to submit the following points from Wilson county.

Number of registered physicians, as per inclosed copy from county clerk, 29; failed to register, none that I have knowledge of. I gave repeated personal notice in several cases, until I believe the registration is now complete.

The health of the county has been better the last year than for three years previous. The prevailing type of fever has been a mild form of typho-malaria, resisting anti-periodics, and running from three to four weeks, ending in the great majority of cases in recovery, but with a great tendency to relapse. No epidemics or endemics have come to my knowledge, excepting the general malarial influence, which has been comparatively mild.

The vaccination rule has not been generally complied with; though, as we had a scare in Wilson county two years ago, during which the people young and old were pretty generally vaccinated, the present failure to observe the rule of the Board is more apparent than real. Eleven physicians have applied for and been provided with vaccination blanks, but none at all have been returned to me. I have given repeated notice, published the recommendation of State Superintendent, distributed circulars to school boards, and urged it in every way, and will continue to do so. The number of school children in the county is 6,239.

The attitude of the people generally toward the law is, I think, all that could be desired. There is no opposition, and, I believe, a fair degree of interest. The papers promptly publish all notices, and there seems a general disposition on the part of the physicians, ministers, justices, etc., to comply with the law relating to returns. I approve of the change by which returns are made to the health officer instead of to the county clerk.

The Legislature should make some provision by which the health officer might receive a salary, graded according to the population of his county, or in some other way. The duties of the office, if properly attended to, consume much time and require considerable thought, and a doctor cannot afford to do it for inadequate pay. Yet the duties performed are such as are hard to itemize and get fairly before a board of commissioners. This is in response to your invitation for suggestions. I hope it may not seem unworthy of note.

Hoping this informal report may prove satisfactory, it is respectfully submitted. F. M. WILEY, M.D., *Health Officer.*

YATES CENTER, WOODSON COUNTY, KAS., Dec. 9, 1885.

J. W. Redden, Secretary Kansas State Board of Health, Topeka, Kansas: I have already placed in your hands the registration of the county of Woodson. Two physicians have located in the county within the last few days, and will no doubt comply with the law. I have this day notified them of the requirements of the law. The return of births and deaths for

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November is about complete. I have no blanks for return to Secretary of State Board, nor have I as yet received the pamphlet of instructions for physicians.

There is a disposition to comply with the law, yet there is a feeling that there is nothing in the law that is in any way compulsory. I think there should be a clear-cut enactment that could be enforced, and requiring officers to enforce its provisions. Among the legal fraternity there is a feeling that there is but little in the law on which to base an action. It is a question of but a short time when the record of births and deaths will be admitted as evidence in the establishment of certain facts; and for this reason every physician should see clearly what is required of him, and the importance of giving it his strictest attention.

The health of the county is in most excellent condition. We had an epidemic of measles in March, February, and April, with but few or no deaths, it being towards the termination of the epidemic. Previous to this, and during the winter there were several deaths from lung complications, attacking principally the middle-aged, with a natural tendency to catarrhal inflammations on very slight exposure. Hereafter I shall endeavor to secure from each physician his personal views as to the character, &c., of all epidemics, and embody them in a report.

There has been no attention paid to the vaccination rules.

While the condition of health is good at the present, I think that the city law of requiring boxes placed on the surface for receival of privy matter is a pernicious one. They never can be made water-tight; the leakage permeates the shallow soil, and will naturally drift to the seams in the sand-rock from which we derive all our water. The water placed in a clean bottle and allowed to remain for a time in the sunlight soon presents a bad odor, evidencing the presence of organic matter. The boxes being up in the air-current, the putrefaction of the contents, with the bad odor, &c., resulting from the decomposition, is easily disseminated and distributed over a large area, which will sooner or later have a distinct influence on the healthfulness of the community. With the idea that the law cannot be enforced, it is useless to make an attempt which can but result in failure.

I am, sir, your obedient servant,

E. K. KELLENBERGER, M. D., *Health Officer.*

WYANDOTTE, WYANDOTTE COUNTY, KAS., Dec. 12, 1885.

J. W. Redden, M. D., Secretary State Board of Health—SIR: I have the honor to acknowledge blanks, pamphlets, etc., with printed circular of instructions. Previous to my appointment, we had no health officer for this county. Dr. J. P. Root was appointed, but died before entering upon his duties. I was appointed health officer for Wyandotte county, Kansas, December 8th. On the morning of the 9th, called at the county clerk's office, when Mr. W. E. Connelly, the clerk, offered me the use of his office (desk room) for any business relating to my office and duties.

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I found that only four physicians had registered, (dates and names on the blanks sent with this,) and at once sent notices to all in the county, and notified personally those in the city, to register at once. I forward, according to instructions, a list of those to date. It is not complete, but will forward the others as soon as obtained.

Our county and city have been free from any epidemics. During July we had six cases of small-pox, with one death, within the city limits, but the prompt and efficient efforts of our mayor, Dr. J. C. Martin, effectually prevented the spread of the disease beyond the two families.

The slaughter houses in my district have not been visited officially; but a former visit gives me the impression they are observing and enforcing cleanliness as far as possible.

Inquiry of the school superintendent shows beyond question that no record has been made of vaccination. He found, however, the largest percentage of pupils had been successfully vaccinated.

With few exceptions, the inhabitants of the county and city have due regard for the laws of health.

I will cheerfully receive any instructions you may see fit to send me and endeavor to carry them out to the best of my abilities.

Respectfully yours, PETER EAGER, M.D., *Health Officer.*

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MISCELLANEOUS PAPERS ON HEALTH TOPICS.

PREVENTION OF DISEASES.

BY G. H. T. JOHNSON, M. D., OF ATCHISON,
President of the State Board of Health.

Dr. John S. Billings's report on the vital statistics and mortality of the United States in the census of 1880, shows the number of deaths for the year 1880 was 756,893. This is doubtless too small by at least 3 per cent., and with our increase in population this annual death-rate is in round numbers about 1,000,000.

The life of men under the most favorable sanitary conditions should be prolonged to the age of 80 to 100 years; yet the mortuary record of 1880 shows that of the 756,893 deaths, more than one-half, or 478,072, were children under 5 years of age. These same tables show that a large per cent., perhaps one-half of all these deaths, were due to preventable diseases.

Consumption leads the list, with	60,000
Malarial fevers	12,000
Diarrheas and dysentery	50,000
Typhoid fevers	24,000
Diphtheria, measles, scarlatina, small-pox, and whooping-cough	60,000
Total	206,000

These nine diseases caused more than one-fourth of the annual death loss; other avoidable diseases would swell the list to one-half of all the deaths in the United States in 1880. All observing physicians know that these diseases are preventable under wise sanitary regulations. Malaria is caused by decayed vegetation, moist soil, impure air and water. England has stamped it out by thorough drainage; other malarious countries have been freed from this poison by planting the eucalyptus tree.

Consumption is in many cases hereditary, yet the predisposition to it can be avoided by choosing suitable occupation, climate, and by correct habits of life. The many cases are contracted by exposure, bad habits, or while waiting upon those sick with it, and are often the result of carelessness or ignorance.

What can be done in the way of the prevention of small-pox by effective and repeated vaccinations, has been proven in one of the largest armies of Europe, where the vaccinations have been so thorough that there has not been a single case of small-pox developed in the last five years.

Scarlatina, diphtheria, measles, and whooping-cough, with the exception

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of sporadic cases, are developed by exposure of the patient to the contagious properties or germ. Strict isolation of these patients, rigid and thorough disinfection of premises and contents of sick room, would render the spread of these diseases impossible. What has been the usual practice in Kansas in such cases? I have known a case of scarlatina develop at a first-class hotel in a large city. The patient remained there for more than a week, with hundreds of guests exposed daily to infection. When the patient died, printed invitations to the funeral were sent out to hundreds of people.

With a board of health organized in each county of the State, such dangerous carelessness in the management of one of the most deadly and contagious diseases known to medical men would not be permitted. Within the last few days the dispatches inform us of malignant scarlatina in New Jersey. We are also informed that one of the first victims of this disease was buried with a public funeral, at which hundreds of people were present. This reckless disregard of prudent sanitary precaution was followed by the usual results in such cases, and this disease has become so general as to make it necessary to close the public schools, and scores of deaths are of daily occurrence. We boast of the intelligence and civilization of the nineteenth century, yet permit with indifference hundreds of thousands of lives to be sacrificed annually to the demon of contagious disease.

In 1873, cholera and yellow fever visited parts of the United States. The people were greatly excited, and general alarm prevailed. The total number of deaths was 8,000 from these two diseases. In the same year, 12,000 of our people died of malaria; 22,000 of typhoid fever; 20,000 of scarlatina; 50,000 of diarrhea, dysentery, and cholera infantum; 18,000 of measles and whooping-cough, and 70,000 of consumption.

Yet this frightful mortality did not create a ripple of excitement in the mind of the general public, and annually our people are suffering the same mortality, plus tens of thousands of other valuable lives that might be saved by enforcing wise hygienic measures.

Does the type of the disease make life less sacred when cut short by measles or whooping-cough? Is the life of the consumptive or malarious patient less valuable than that of the cholera or yellow-fever patient?

Do you ask me what marked trait especially distinguishes the American people from other civilized races? I answer: Their total indifference to the value of human life.

I have not attempted to follow my subject in all its details. I have only intended to show that in many diseases causing premature deaths, men by the application of the well-established principles of hygiene have power to prevent or control them.

The great question that demands an answer of the true sanitarian is, what are we to do to stop this frightful loss of life? What can we do to "render growth more perfect, decay less rapid, life more vigorous and secure, and death more remote?"

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There are four essentials necessary to the attainment of a long and vigorous life; they are: First, pure atmosphere and water; second, wholesome food in quantity and quality; third, freedom from contagious diseases; fourth, the inheritance of a healthy constitution. "Man in his individual efforts has little or no control over either of these essentials of life;" he must look to the state or municipal government, or to other organizations, to secure to him the enjoyment of either of these blessings. Past experience has proven that state and city governments have so many other weighty matters to look after, that they give but little time to the consideration of the sanitary condition of the people. "What is everybody's business is nobody's business," is a true saying, when applied to the public health; therefore, the necessity exists for boards of health. These should be composed of intelligent, progressive, active and zealous physicians, who should be fully authorized and amply equipped by the power that created them, to adopt and enforce such rules and regulations as they, in their wisdom, may think will secure to the public the greatest good. They should adopt active measures to stamp out all contagious, epidemic or endemic diseases, and see that the food and water supply of the people are pure, and educate the masses in sanitation. Advise the education of the children in an understanding of the principles of sanitation. Educate the legislators to understand that health is the capital of the nation. Educate the engineer in the relation of his work to hygiene. Educate the architect as to the sanitary arrangements of dwellings, schools, churches, work-shops and public buildings. Educate the people of all classes and conditions to say, with Dr. Parks, of England: "It has been proven over and over again that nothing is so costly in all ways as disease, and nothing is so remunerative as outlay which augments health, and in so doing augments the value of the work done."

Medical boards should put in force such strict medical police regulations of the brothels of the cities as will save from poisoning one or two millions American citizens. There would be little charity for this class of citizens, did not the innocent often suffer from the wrong-doing of the guilty.

The public have not fully realized the great good to result from the labors of the boards of health. This want of appreciation, when manifested by our law-makers, is discouraging to the physician who believes that an ounce of prevention is better than a pound of cure. The members of Congress in 1884 refused to take action on any of the bills presented in the interest of the National Board of Health, but enthusiastically appropriated $150,000 to be expended in organizing a bureau of animal industry, and to secure the health, comfort and general well-being of the horses, cattle, sheep, and hogs. We are led to infer from this action that the able members of Congress consider the domestic animals—not excepting the ass—their constituents.

Yet notwithstanding the many impediments and discouragements to be overcome, the health boards in the United States have achieved satisfactory results, and the per cent. of mortality in the year 1885 has been lower than

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at any other time in the last twenty-five years. While climatic influences may have contributed somewhat to this high standard of health, it has been largely due to an increased knowledge of correct hygienic and sanitary conditions. The health boards, national, State and municipal, have been watchful guardians of the public health, and have rendered efficient services in the prevention of disease.

It is interesting to note in this connection the fact shown by the life insurance tables, that the average of life is greater by several years than when the Carlisle tables were constructed. If physicians will all become active sanitarians, and the people liberally support the boards of health in the work of reform, each decade in the next century will show a marked increase in the longevity of the people. When the gospel of prevention shall have been effectually preached, and its doctrines embraced by the people, the medical hero will not be he only who sacrifices his life in ministering to those dying with cholera, yellow fever, and other malignant diseases, but he also who shall teach the people how to prevent these diseases. The progressive physician of the future will teach that cleanliness is next to godliness, and prevention is better than cure.

OUR COUNTRY HOMES—THEIR SANITARY CONDITION.

BY D. SURBER, M.D., OF PERRY,
Member of the State Board of Health.

Sanitary science is a term of recent origin, defined by high authority as an application of the laws of physiology and general pathology to the maintenance of the health and life of communities, by means of those agencies which are common and in constant use; and, in many of its practical aspects, has been treated under the head of hygiene.

Recent commentators have shown the probability that many, if not all, the minute directions for daily life, protection, and preservation, contained in the Mosaic and other codes, were based upon the views then prevalent in regard to hygiene and other sanitary conditions.

The vast public works for drainage and sewerage in Rome, and the appointment of State physicians, testify that sanitary science was not unknown to the rulers of that empire during the middle ages. However, the widespread contempt of the body and of all material things, which was inculcated by the ascetics of the Church of Rome, effectually prevented the adoption of any public sanitary measures; and it was not until at an advanced period of the nineteenth century that public hygiene was recognized as a science of intrinsic importance. This may be attributed to the labors of Dr. Southwood, Smith, Dr. Edmund A. Parks and others in 1819, which may be briefly described as the beneficent movement in England which

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resulted in the establishment of sanitary science upon a firm basis; the appointment of boards of health in all the principal cities of Great Britain and Ireland and in the smaller towns; the division of that kingdom into health districts; and the passage by Parliament of very numerous measures directly inspired by these energetic reformers.

To their labors again is largely due the somewhat later developments in the United States of similar administrative reforms, which received an incalculable impetus from the medical department of the military service during the civil war—a school in which nearly all the American sanitary reforms of the present day were trained. But the field for labor of the sanitary boards is so vast, and the discretionary power confined to it so limited, that further legislation is urgently required, as well as the establishment of sanitary instructions in every public school and in every private home. The prime conditions of health, in a house, depend upon cleanliness, pure air, and unpolluted water; the prompt removal of all refuse, and perfect exclusion of all matters arising outside of the house. Zealous and constant attention must be paid to the cellars, pantries, passages, yards, outbuildings, and privies, so as to prevent the accumulation of filth, garbage, or masses of decomposing organic matter, which are so prejudicial to health. Mould, dampness, and foul smells are never to be neglected, even for a few hours; a bad smell is nature's warning of danger. Eternal vigilance in these matters is the price of health in the family.

The people need to be taught that prevention is better than cure, and far cheaper; that it is much better to so live that disinfectants will not be needed, than to be careless of refuse matter, of pure water, of ventilation, of cleanliness of house, of yard and of person, and then strive by means of chemicals to purify great masses of filth in the house and its surroundings—for there is a strong and popular belief that the commercial disinfectants, especially if possessed of powerful odors, are capable of purifying all manner of filth and nastiness; to offset which, there is good reason to believe that one-half at least of the disinfectants on the market have no value, and the other half are so used that they are almost valueless.

Sunshine and free ventilation are natural disinfectants. Could they freely and constantly enter our habitations, no other disinfectant would be needed, except where men are congregated in great numbers. They have no equals, and no substitutes; and no substitutes are known to science. Sunlight and fresh air should flood every nook and corner of the house and of the surrounding premises. It is well said of the habitation where sunlight cannot enter, that the doctor will.

The greatest need of disinfectants is generally in the homes of the poor, who are least able to use them in an intelligent manner. Hence discreet persons should be appointed as examiners by health boards, who without exciting alarm or arousing the prejudices of this class of the population, may detect unsanitary conditions, and in a scientific manner apply the remedies.

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Second only to pure air is pure water. It has been called the most potent servant the sanitary authorities can call to their aid. Drink only pure water. Demand and insist that the household supply be of the best quality, and nothing else. The origin of many of the germ diseases has been directly traced to a contaminated water supply, and I believe that most typhoid cases can be shown to have resulted from drinking impure water. The best water for drinking purposes, and the one to be considered as least likely to contain infectious material, is water which flows rapidly, and is very much disturbed, so as to be constantly receiving fresh oxygen. Thereby the organic substances of the combination set up by oxygen, is a matter which concerns the health and the lives of the people, and appeals to the interest of every home in the land. What is to be done to teach the truth and the facts? There has been too much technicality, and too little simplicity and common sense, in the literature widely disseminated among the masses. They know from observation, reading and experience that filth, animal and vegetable matter, under certain conditions of heat and moisture, decay or putrify, and that this promotes the growth and spread of disease. Cellars, yards, garbage boxes and cesspools are the places to be constantly cleaned and disinfected.

Assuming that all reading and thinking people know and appreciate the disinfecting value of sunshine, fresh air, pure water, and fire to burn all sources of disease-producing matter whenever practicable, what substance, natural or artificial, can be used that is abundant, cheap, and good, which applied to filth will prevent disease, and lessen the death-rate—that has stood the test of time, and can stand the test of the chemist? Chlorine is that substance, and its compounds are invaluable. It was discovered by Scheele, in 1774, (and was confirmed by the experiments of Sir Humphrey Davy, published in the transactions of the Royal Society, 1880, pp. 9–10–11,) who named it chlorine. In reference to chlorine, I make this communication, which should be posted in every man's parlor.

The fact that I allude to has been recently ascertained by a French chemist and surgeon, M. Coster, and published in the American Journal of Science by Professor Silliman. This important fact, that chlorine has the power to decompose and destroy the deadly poison of the mad-dog, has grown out of chemical research, and is of more value than any other discovery which the annals of medicine have recorded, because it furnishes man with a certain prophylactic against the most horrible disaster which is incident to his existence. Of the truth of this discovery, and the accuracy of the experiments on which the experiment is predicated, there can be *no* doubt. It is affirmed by the most highly valued authority; and M. Gay Lussac has since reported a case of the successful application of the same substance to poison by Prussic acid, one of the most active and virulent known in nature, and it will be probably extended to many others.

This article, chlorine, is cheap, and should, in conjunction with the mode

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of using it, be in the possession of every family, because delay will render it abortive. It is prepared and applied in the following manner: Make a strong wash, by dissolving two tablespoonfuls of chloride of lime in half a pint of water, and instantly and repeatedly bathe the parts bitten. The poison in this way is decomposed. It has proved successful when applied within six hours after the bite.

It will here be necessary to speak more particularly in reference to the sanitary condition of the country homes. There is no profession or occupation in life so well acquainted with the home and its inmates as that of the practicing physician. His call extends to the rich and the poor, to the grandest mansions as well as the lowest hovels in the land. In fact, he meets all classes and all nationalities, many of whom have but little knowledge of or but little regard for sanitary or health laws in either person or home. The country, with its blossoming orchards and fragrant clover fields, is looked upon as the healthiest place to live; but this is often a delusion. About the farm buildings have been congregating for perhaps fifty years a collection of animals and men; and unless unusual precaution has been taken, the surroundings are likely to be just such as cholera germs would thrive upon; also diphtheria and typhoid. Some of the oldest farming sections in this country, settled nearly a century ago, that have proven healthy in the past, are now becoming afflicted with miasma on account of gradual accumulations destructive to health. The sanitary condition of the country is far worse than the cities, although the general opinion is to the contrary. The soil about dwellings becomes saturated with filth from dish-water and slops; the water pipes from the kitchen sink may become frozen in winter and clogged in summer, causing the foul water to soak under the foundation of the house and make a breeding-place for disease. In regard to drinking-water, the great source and medium for the dissemination of disease, who is absolutely sure of its purity? Suppose I am dissatisfied with my present supply, and determine to sink a new well; I do not know the history of the place; there is nothing to prevent locating the well at or near a point decidedly objectionable, owing to an out-house vault that may have been located there in the past. It is common practice of farmers to fill up such vaults with earth without removing the contents—this being the easiest method of avoiding a nuisance. My observation is that not more than two of every five of the dwelling houses of this country are built in view of a hygienic locality and construction. What are the results of unhealthy location, poor construction and no ventilation of the houses we live in? The results are, many aches and pains, scorching fevers, big doctor bill, business for the undertaker, and filling up of the graveyard.

If these statements are true, then we are to some extent our own destroyers of health, life, comfort, and happiness. Then is it not time that we, as a progressive people, inquire into the cause and apply a remedy? First, educate the people up to a high standard of sanitary and health laws, by the

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free circulation of literature pertaining to the cause and prevention of diseases; and here calls in question the duties and responsibilities of State Boards of Health. Labor and money are two great requisites to this end. Will the State provide the money? State boards are ineffective in their labors without money.

The second object in the construction of the house is, site and soil. When there is free choice, a gravelly soil and sloping grounds are preferred.

Water supply: A well 30 feet deep, yielding clear, colorless water, free from drainage contamination, and a cistern or tank to hold a sufficient supply of rain-water.

Drainage: The soil on which the house stands should be thoroughly drained, and all offensive refuse promptly removed by impervious pipes. The preservation of dwellings from dampness is of the first importance.

Light and air: Rooms should be lofty and spacious, windows opening from above and below—well lighted and aired.

Heating: This should be effected so as not to interfere with ventilation; close stoves should be banished from sleeping and living apartments.

The foregoing are a sufficient number of statements to adduce in an article of this kind, to show the efficiency and the leading remedies to be taken into consideration in the erection and construction of the country home and its sanitary condition.

SMALL-POX AND ITS PROPHYLAXIS.

BY W. L. SCHENCK, M.D., OF OSAGE CITY,
Member of the State Board of Health.

The origin of small-pox antedates the historic age, and as we have no record of a well-authenticated case occurring *de novo*, its primal cause is unknown. From Ahron, an Egyptian author of the sixth century, and from Rhazes, of Bagdad, whose descriptions of the disease are the earliest that have escaped the wreck of time, we learn it probably originated in Asia. We have no evidence that the wars of Cæsar carried it into Europe, or that it spread into that country until the time of the Crusades; but when it occurred, so terrible were its ravages down to the close of the last century, that its very name was sufficient to blanch the cheek of the bravest. Could we go back a single century and visit the great cities of the Old World, nothing would surprise us more than the pock-marked visages met at every turn; for of those who escaped death by its ravages, very few escaped disfigurement. Hirsch, in his graphic description, characterized it as the "murderous disease, beside which the loss through the bloodiest wars, or through other pestilences, such as plague and cholera, appears to be infinitesimally small."

Despite all sophistry and cavil, every intelligent student of the history

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of disease must account its modification and eradication as among the greatest triumphs of medicine. But it is not yet extinct. With all that has been accomplished, much remains to be done; and those who have entered a profession that assumes to guard the public health, as well as those who have accepted positions through which they may protect the public weal, and who refuse and neglect to use and enforce the means which have wrought so great a change in this loathsome destroyer, are guilty before God and humanity.

Judging from what has been done, the inference is that small-pox can be utterly eradicated; and once extinct, as we have no knowledge of its primal generation, we may well believe it will live only in history. But "eternal vigilance is the price of exemption." When protection is neglected, its virulence is unabated. The grass has not yet grown over the graves of thousands of men, women and children slain in the full vigor of youth and manhood in the neighboring city of Montreal.

Though a treatise on small-pox is not within the scope of this paper, before speaking of its relation to State medicine we will briefly outline the disease.

First occurring in a remote age, it has been handed down from generation to generation by infection or contagion. Of its infectious or contagious principles, we are almost as ignorant as of its primal cause. It is the present fashion of the medical world to attribute it, as well as every other disease, to a specific microscopic germ. But with all the investigation of its eminent advocates, the proof of germ causation is wanting. We would rather assign as its contagious nidus, the death of certain cellular elements, capable while undergoing the changes incident to and consequent upon death, of establishing the same changes in like elements in other living bodies, which, once destroyed, the new body being made by and through the metamorphosis of the old, and partaking only of its peculiar characteristics, it is not thereafter impressible by such contact. Hence the contagious principle displays its greatest activity while the process of change is at its height, or during the vesicular aud pustular phases of the disease, though probably capable of acting in its earliest stages, and if kept from decomposition, retaining its virulence for days, months, and years.

In health and disease molecules of the body are constantly thrown off through the glands and skin, so thoroughly enveloping it in a halo of its own, and attaching themselves to solid substances about it, that the keen-scented dog recognizes his master while many feet distant, and will follow him when miles away. When these emanations, as in small-pox and other specific diseases, possess special pathological characters, they are capable of communicating like maladies by establishing like changes in healthy organisms. When persons suffering from such diseases are crowded in illy-ventilated hospitals or homes, the accumulation of these emanations greatly increases the danger of contracting such disease, and, by virtue of the in-

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creased number of the diseased molecules brought in contact with the unaffected, greatly increases their virulence. During the winter months the rooms containing small-pox patients are more perfectly closed than in summer, hence both the danger of contagion and the virulence of the disease are greater in cold than in warm weather.

All conditions and all ages are liable to small-pox, but bad ventilation, inefficient diet and special idiosyncrasy predispose to the disease. During certain seasons and certain conditions of the system, some unknown factor increases the susceptibility, causing it to prevail as an epidemic, and to attack persons innocuous at other times. The dark-skinned races are more readily and seriously affected than the light-skinned, and childhood seems more susceptible than maturity.

It has been supposed that susceptibility to the poison is modified by generations of vaccination or inoculation. To this theory there are potent objections. In the vast majority of cases one attack secures immunity in subsequent exposure; yet there are many exceptions to this rule, and a few individuals have re-contracted the disease from every new exposure.

The early and correct diagnosis of small-pox is one of the most important duties of the physician. To call a case small-pox, when it is some milder disease, awakens the ridicule and indignation of the people, who, illy-comprehending the difficulties in diagnosis at certain stages of its obscure forms, accept no excuses; and to mistake a case which is small-pox for some other disease is rife with public disaster, and may call the physician unpleasantly into the civil courts. After studying the history of the case, the character of the cicatrices, the possibility of contagion, and fully weighing all the symptoms, if a doubt still remains it must be decided in the interests of the public. Little harm can arise from isolating some milder contagious congener, while failure to isolate a case of small-pox may be followed by widespread disaster. The rule is, "The greatest good to the greatest number."

The diagnosis of the disease presents no difficulties when the typical eruption is fully developed, but it is far otherwise at certain stages of its milder and modified forms. The umbilicated vesicles are almost pathognomonic. Their preceding deep-seated papules, feeling like small shot beneath the cuticle, are peculiar to the disease. The duration of the stage of invasion; the cessation or diminution of the febrile movement at the time of the appearance of the eruption; the round, ashy spots on the mucous membrane of the mouth, slightly antedating the eruption of the skin; the rash, occurring first on the triangles of Simon; and a purplish, circumscented blush in the center of each cheek, are all characteristic. Rubiola and scarlatina are the diseases for which, in its earlier stages, small-pox is most liable to be mistaken. In the former the stage of invasion is longer, in the latter shorter, than in variola. In the former the Schniderian and conjunctival membranes and the air passages are early and peculiarly affected; in the

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latter the same is usually true of the fauces, while in both there is increase instead of decrease of the fever at the period of eruption. In rubiola the temperature during this stage goes up to 103° F., in scarlatina up to 106° F., while in variola it goes down to 100° F. In rubiola the eruption appears first in the face, afterward on the trunk and limbs, and is crescentic in form, abruptly defined, and pales in color on pressure. In scarlatina it appears first on the face and neck, spreading thence over the body; it is without papules, and leaves a white line when the nail is drawn over the surface, and has a generally-diffused, boiled-lobster hue, while in variola, even in the confluent form, the papules are always discrete, without appearance of grouping; and are surrounded by a halo of hyperæmic integument, persistent in color under pressure, and appear first in the triangles of Simon. When opportunity for careful observation is given, there would seem, except in mild and modified cases, enough diagnostic symptoms to readily distinguish the disease; but it is in precisely these cases that the physician's opportunity for diagnosis is abridged.

The stage of incubation usually embraces from ten to fifteen days, but may be shorter or longer. During this period, while the poison is quietly inosculating and inoculating the tissues, the patient seems to enjoy usual health, though there may be languor, anorexia, insomnia, and pallor or sallowness of the skin. These prodromic symptoms, when present, intensify as the incubative stage progresses.

Next comes the period of invasion, which lasts two or three days. The symptoms of this period are due to the impress of the poison on the nervous system. At the onset there is a sharp rigor, sometimes only a more or less continuous chilliness; the temperature rises to 105° F., and the pulse to 120 or 130 beats per minute, with all ordinary febrile symptoms. There is rarely wanting a characteristic pain in the head and back, so peculiar and intense as to be in itself diagnostic, the patients complaining that they "ache as if they would break." In young children the invasion is often accompanied with delirium and convulsions. Exceptionally the disease terminates fatally during this stage, the intensity of the poison depressing the nervous system beyond the power of reaction. About the third day the nervous fever subsides, the temperature going to about 100° F. in the axilla, and the pulse to nearly or quite normal. If, however, the type is confluent, this decline is much less marked, and hence it has an important prognostic value. The decline of the fever is probably due to the hyperæmia of the cuticular surface, the increased stimulus to the sudorific glands ultimating in free perspiration. Exceptional cases and its cessation on the advent of the eruption being easily explained on pathological principles, the fever gradually returns with the development of the eruption, which in its difficult stages simulates nearly all the cutania.

In ordinary cases there is generally observed a dusky, hyperæmic condition of the mucous membrane of the mouth. The eruption is common to

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all mucous membranes, but is rarely characteristic of them. The epithelium giving way on the appearance of serum, there is no vescicular or pustular stage. There is an abrasion of the membrane, surrounded by an inflamed areola. The mucous eruption is most common on the tongue and soft palate; occurring on the larnyx, trachea, and bronchi, it is often followed by serious results.

When there is much eruption in the mouth it is followed by profuse salivation. The eruption on the body is first observed on the inner surface of the arm and the pectoral region (Simon's trachial triangle), and on the inner face of the thighs and the hypogastric region (Simon's femoral triangle), probably first manifesting itself in these places because here the cuticle is thin and delicate. The first rash, known as erythema or roseola variolosa, will indicate the type of the disease by its extent. In very mild cases it may be wholly wanting. Spots or specks of a dark color, sometimes livid or purple, soon appear on the rash. The centers of these maculated spots soon become hard, pointed, slightly elevated, and feel like small shot beneath the skin. In about twenty-four hours after their appearance the cuticle at the apicis of the papula contains a drop of liquid, and the eruption is vesicular. In forty-eight hours the vesicles have acquired considerable size, and on the fifth day are fully developed, measuring from one-fourth to one-third of an inch in diameter, and from one-fifth to one-eighth of an inch in height. More or less of the vesicles are umbilicated, depressed at the center. This truncated appearance may be discovered on some of them at an earlier period, and is so characteristic of variola and vaccina that it is considered diagnostic.

The vesicles are multilocular, and contain an opalescent serum. About the sixth day the walls of the cells containing the serum give way, and the pocks become more distended and pointed, their truncated form being lost. This is known as the suppurative or maturative stage of disease, and is accompanied by a very important class of symptoms. There is a notable increase of the febrile movement known as the suppurative or secondary fever; it is a symptomatic fever consequent upon the progressive inflammation of the skin, and, other things being equal, is in proportion to the extent of this inflammation and its suppurative sequences. The skin between the pustules is more or less reddened, and the face is often greatly swollen and the eyes closed. In these cases the extremities are also swollen, and when this effusion in the cellular tissue does not occur it is a bad omen.

In the confluent form of small-pox the vescicles and pustules have not the determinate form described, but coalesce to a greater or less extent in patches of various size, resembling blisters, in which the cuticle is uniformly raised by the opalescent serum.

The danger to life in unmodified small-pox is always great, one-fourth to one-half the cases proving fatal. Death in such cases, as already stated, may come during the stages of invasion, from the intensity of the impression on

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the nervous system, but usually occurs during the second week, from insufficient power to support the changes incident to the suppurative process, and is usually commensurate with the extent of the eruption. The disease is much more fatal in children than adults, and in old age than in youth and manhood.

Complications in the disease are quite common, and every complication in a disease which taxes so heavily the vital powers is a grave event, and necessarily increases the death-rate. Those who escape death in the confluent form, rarely escape disfigurement, or get more fearful consequents. In what other disease has there been such fearful destruction of life and of comeliness? What wonder that in time past its name was the terror of the nations? How, with the improvements of the nineteenth century, whereby patients exposed to the disease in Europe are brought to America before the incubative point has passed, and carried from the Atlantic to the Pacific ere it has scarce begun, has its name been shorn of so much of its terror? The answer cannot be because of our increased knowledge of the power of germicides, for the change antedates the germ theory. Much as we have gained from the wise use of antiseptics, the recent epidemic in Montreal shows little abatement of its old-time virulence.

Preventive medicine has taught us how to modify small-pox, when already existing, and how to prevent its spread, and how relegate it to the history of the past. There has been some confusion about the precise signification of deodorants, disinfectants, and antiseptics. A deodorant deodorizes, destroys or modifies the odor connected with all disease in which there is sepsis—death and decomposition of organic matter. It may do this by producing a stronger odor, without being antiseptic; by chemical union with the products of decomposition, or by arresting the decomposition, and thus preventing the generation of odor, it is then an antiseptic. Those who see in certain micro-organisms, bacteria, micrococci, etc., the cause of all disease, make a distinction between disinfectants and antiseptics, and thus define a disinfectant: "Any agent capable of destroying the vitality or power of propagation of these minute and invisible organisms;" while they say, "antiseptics prevent their propagation by sterilizing the soil which they commonly select as their habitat."

Dr. Sternberg says: "A disinfectant may be both a deodorant and an antiseptic, but it is not for this reason a disinfectant; but because of its ability to neutralize the infecting power of infectious material."

As no disinfectant can be used in or about the body of sufficient strength to destroy the germs that are supposed to cause disease, for that purpose disinfectants are useless, and beyond the range of discussion. For example, heat is a disinfectant. Dry heat at 220 to 230° F., or moist heat at 140° F., will destroy germs; while a temperature that can be borne by the patient only makes them lively. Sulphur or chlorine fumes strong enough to destroy germs, will destroy the patient.

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So of other disinfectants: the vitality of the germ always exceeds the vitality of the patient. Hence, disinfectants as defined by the germ theorists, are impracticable, except when the germs can be carried away and treated apart from the patient. An antiseptic is opposed to, prevents or arrests sepsis — the disease process — and is efficient in much more dilute forms than is required to destroy microzones.

My own experience teaches that fumigation with sulphuric-acid gas, saturating the air to the full endurance of the patient, followed by free and thorough ventilation, will modify the disease, and prevent its spread.

All articles from the sick room should be soaked over night in a solution of bichloride of mercury, 1 to 1,000, in Labaraque's solution 1 to 10, or in a twenty-per-cent. solution of carbolic acid, and then boiled. Before the house is occupied by other persons, it should be thoroughly fumigated with sulphur.

From the carefully-prepared tabular statements of 1,101 cases in the reports of the State Board of Health of Illinois, we learn that 398 of the 1,101 cases had not been vaccinated, and that of this number 238 died; and that most of the 160 who escaped death, had the disease in its confluent form, and were left scarred and maimed for life. While of the 703 who had a vaccinal cicatrix, only 12 died; and the majority had the disease in a mild form, without permanent evil results.

We might tire your patience with allied statistics, and fill pages with the names of the most distinguished members of the profession who believe that in repeated and thorough vaccination we have a prophylaxis that has shorn small-pox of all its terrors by reducing its mortality from forty-eight and fifty per cent. to less than one-eighth of one per cent. As the authority against vaccination is comparatively nothing, it is hardly worth while to insult your intelligence by quoting from the superabundance in its favor.

At a conference of boards of health, held in Chicago, June 24–30, 1880, a committee composed of C. N. Hurte, Secretary of the State Board of Health of Minnesota; H. P. Strong, Secretary of the State Board of Health of Wisconsin; Henry B. Baker, Secretary of the State Board of Health of Michigan; O. W. Wright, Health Committee Member, Milwaukee, Wisconsin; Oscar C. DeWolf, Health Committee Member, Chicago, Illinois; E. Lloyd Howard, President of the State Board of Health, Nebraska; R. J. Farquharson, Secretary of the State Board of Health, Iowa; A. H. Briggs, Health Officer, Buffalo, New York; Thomas M. Struny, Secretary of the State Board of Health, Indiana; James A. Stewart, Health Officer, Baltimore, Maryland; Stephen Smith, State Board of Health, New York; Hosmer A. Johnson, National Board of Health; John H. Rauch, Secretary of the State Board of Health, Illinois, reported, among other things, which report was unanimously adopted, that "a more important duty rests upon local boards of health, viz.: persistent efforts to secure vaccination to every person within their jurisdiction. Local boards should use their utmost efforts to make vaccination and revaccination (the only real safeguard against small-pox)

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universal. Vaccination should not only be offered, but urged persistently upon those who neglect it; and restrictive measures, as expulsion from the public schools, should be enforced against those who refuse."

James Minus Hyde, M.D., says very pertinently, in Vol. I of "A System of Medicine by American Authors," now in process of publication, on page 451: "The loftiest end to be reached by the physician of our day with respect to variola, is its complete removal from all civilized countries, and indeed from the face of the earth, by the practice of universal vaccination and revaccination. The evident modifications which the disease has undergone in late years as a consequence of the extraordinary attention given to this subject, is an earnest of the future. The day is probably not far distant when the man, woman or child, unprotected by vaccination, will probably be regarded as an enemy to the human race, and treated accordingly. Evidence of the most satisfactory character as to successful vaccination should be imperatively required of all applicants for admission to schools, academies, colleges, charitable institutions, public libraries, art galleries, and places of labor controlled by incorporated institutions; of all members of conventions, legislatures, political, religious and deliberative bodies; of every purchaser of a ticket for purposes of travel, and of every voter. In addition, there should be in every district a systematic and periodical inspection of all persons registered in the census, by persons qualified and competent to perform compulsory vaccination. This is the scientific treatment of variola."

Despite statistics and the authority of the best medical authors, teachers, and practitioners, there are some doctors (?) who seem determined to keep disease in the field. There is a method in their madness. They prescribe for the patient, while the true physician prescribes for the disease, and they too often do for the patient what the physician would do for the disease. There are others who seem incapable of grasping the truth, however clearly demonstrated.

We will quote three examples.

A few months ago, while small-pox was destroying thousands of lives in the city of Montreal, while the humane and intelligent were laboring night and day for the prevention of the disease and the comfort of the sick, while the city was expending $3,000 a day in caring for the sick and burying the dead, while all business was prostrated, entailing losses compared with which the direct expenditures in behalf of the stricken were as nothing, one Alexander M. Ross, M.D., distributed broadcast over the city and surrounding country, in envelopes adorned with a policeman holding the arms of a mother while Death vaccinated her child, and inscribed with "In Rama was there a voice heard, lamentation, and weeping, and great mourning—Rachel weeping for her children, and would not be comforted because they are not." (Matt. 2: 18), the following circular:

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"STOP!

"A PITIABLE SIGHT.

"People driven like dumb animals to the shambles! Tyranny of doctor-craft! The people of Montreal gone mad! Lashed into fear and dread by the insane ravings of a mad press! Thousands of people insanely rushing to the shambles of the vaccinators, as the people of the dark ages did to the soothsayers and miracle-workers for protection against evil spirits. And this is Montreal in 1885. STOP and think! What are you doing? You are trusting a bauble that has no more influence in preventing you from having the small-pox than the 'charms' and incantations of an African savage have to ward off the bullets of their enemies. Fathers and mothers of Montreal! you are committing a crime against your innocent children by forcing this filthy, useless and dangerous rite upon them. You are aiding and abetting an outrageous crime against those who look to you for protection from disease and impurity. You are contaminating the bodies of your children with rotten pus of a diseased beast—for this pus (miscalled lymph) is the product of disease. The prevailing talk about pure vaccine is deceptive; you might as well talk of pure filth. The introduction of this filthy, putrid pus into the body of a pure and healthy child is a crime. I maintain that any substitute for cleanliness, pure air, pure food and pure water is but a delusive and disgusting expedient. Small-pox is a filth disease, and nature's antidote is cleanliness. Small-pox can no more be stamped out by vaccination than sin can be by priestcraft. *Vaccination is poisonous!* For other poisons there are antidotes; for vaccine poison, *none.* For more than a hundred years arm-to-arm inoculation was practiced and recommended (as vaccination is today) by the most eminent (?) physicians as a sure preventive of small-pox; *now it is a penal offense* to practice it in England, as scrofula, syphilis, and other diseases were transferred by inoculation. Tens of thousands of victims of this delusion who were swept into untimely graves, recently died in this city, had from one to three marks on their bodies. Though the press and profession say vaccinate! vaccinate!! vaccinate!!! and the people in thousands follow their blind leader, I still say *don't!*

"MAD!

"Our city authorities and press are mad; their insane cry of alarm, 'Vaccinate! vaccinate! vaccinate!' has driven thousands of our usual summer visitors away from the city, and injured our trade and commerce to the extent of millions of dollars by their senseless sayings. Small-pox is not epidemic in Montreal; it is sporadic, and in general endemic; but, considering the density and character of the population of 200,000 of mixed nationalities, there have been *very few cases*, not exceeding 500 at any one time, in the city, and these generally in the most ill-conditioned localities. The last report of our Board of Health says: 'Up to August 17 there have been 133 patients admitted into the hospital, suffering from small-pox. Of these, seventy-three were vaccinated, fifty-six had one mark on the arm, thirteen two marks, and four three marks. In all, 44 died; of these, 18 were vaccinated.' There is no reason for this senseless panic. Montreal should be one of the healthiest cities on this continent, and it would be if our authorities would enforce thorough sanitation, instead of blindly trusting to the miraculous potency of a useless, dangerous and filthy rite like vaccination.

"OUTRAGE ON PERSONAL LIBERTY!

[Here is a cut of a laboring-man bound with cords, and held by a policeman while a doctor vaccinates him. Then follows:]

"MONTREAL WORKING MEN AND WOMEN FORCED TO BE VACCINATED!

"No more work for those who refuse to have the mark of the beast on their bodies! *Talk no longer of Russian tyranny!* Tyranny is detestable in any shape, but in none so formidable as when it is assumed and exercised by a number of petty tyrants. It is in

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vain for working men and women to plead that they do not believe in the efficacy of vaccination. They are told that they may believe what they like, but that vaccinated they must be, or they will have to leave their employment, which to many of them means starvation. Compulsory vaccination on all who are unvaccinated—in fact an old obsolete law, some relic of a dark and ignorant period, has been brought from its tomb, and may yet be enforced in this hour of madness. Are the people of this noble city so cowardly and deficient in spirit and independence as to submit tamely to this contemptible tyranny of doctor-craft? If so, they do not deserve the blessings of freedom.

"The medical profession have denounced me; the press have ridiculed my views of vaccination, and then closed their columns and refused me space to reply. But I will be heard. This is a struggle of health against disease. I am seeking to disseminate views which I am convinced are beneficial to mankind. I believe in what I utter, and believing, mean to live up to it. Although alone in this fight against vaccination, I believe the cause I advocate will finally triumph. Personal abuse and persecutions are the weapons my opponents rely upon to defeat my purpose, which is to express the light of reason. This vaccination delusion. I may be defeated at present, but the cause will live, and in less than twenty years from now the people of this city will look back with feelings of horror at the outrages upon life and health perpetrated by the vaccination of this day.

"CAUTION.

"Do not be alarmed by the small-pox.

"1. Vaccination has been weighed in the balance and found wanting.

"2. Vaccination does not prevent small-pox in any cases.

"3. Vaccination does cause loathsome and often fatal disease. Many children are killed outright, and thousands have their health ruined by it.

"4. Vaccination does not lessen the surety or the fatality of small-pox. The proportion of vaccinated persons who have small-pox has steadily increased as vaccination has been extended; the number of deaths in proportion to the cases is the same as ever. In the last epidemic of the small-pox in London, 92 per cent. were persons who had been vaccinated or revaccinated.

"The proper and only safeguards required against small-pox are pure air, cleanliness, and temperance. Observing these three conditions, no one need have the slightest fear of the contagion. Vaccination only increases the risks. If the doctors do not know these facts, it is high time they were enlightened. Think twice before you consent to swell the harvest they expect to reap from this panic.

ALEXANDER M. ROSS, M.D.,

Member of the College of Physicians and Surgeons of Quebec, Ontario and Manitoba.

227 UNIVERSITY STREET, MONTREAL, Aug. 21, 1885."

We find another sample of this class in Osage City, Kansas, who, at a meeting of its school board, urged it to refuse to carry out the vaccination order of the Kansas State Board of Health, informing it that many of the most enlightened physicians considered vaccination useless and injurious; that to insert diseased pus in the arm could not do other than injury; and warning them that if they attempted to execute the order of the board, they might expect the same mob law that ruled in the neighboring city of Montreal.

We instance yet one other example of opposition to vaccination. Shortly after the order was passed by the board, we received by mail the following circular:

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"[From the Emporia Daily Republican of October 9th.]

"COMPULSORY VACCINATION.

"There is a time to keep silent, and a time when a citizen should speak. The performance of that duty is the only apology offered for objecting to the order issued by the Kansas State Board of Health—that all parents who do not submit their children to compulsory vaccination, must have them expelled from our public schools. That there may be no mistake that such an order has been made, permit me to clip it from the Topeka *Daily Capital* of September 12, 1885, the official organ of the Kansas State Board of Health, I presume:

"'VACCINATION.—*Resolved*, That by the authority vested in this Board, it is hereby ordered: That on and after October 1, 1885, no pupil shall be admitted to any public school in this State without presenting satisfactary evidence of proper and successful vaccination.

"'Every county and health officer in the State has a full supply of blank vaccination certificates to furnish every physician, who should at once apply for them. Unity and promptness of action in these important matters will promote public health and protection.

Respectfully yours, J. W. REDDEN,
Secretary and Executive Officer Kansas State Board of Health.'

"Kansans, carefully read it—ponder it over, and see if it is in harmony with the economy that a free government should exercise. If so, practice it; if not, consider whether a medical dogma or the people shall rule. Personally, I cannot comply with such an order; experience has taught me better. They cannot disease my child with the pus of a brute, while God sees fit to make its cheek bloom with health, if I can prevent it.

Yours, in the interest of humanity, T. ARTHUR WRIGHT, M. D.,
Member of the Kansas State Board of Health.

AMERICUS, KAS., Oct. 3, 1885."

These we believe are fair examples of the opponents and the opposition to vaccination. The best answer to the first is found in the Montreal *Daily Witness* of Oct. 13th, 1885, of which the following is a copy:

"IS IT FALSE COLORS?

"AN ANTI-VACCINATIONIST IN THEORY—NOT IN PRACTICE.

"*What Dr. Coverton says about Dr. A. M. Ross.—He is stopped and examined.—The Vaccination-Marks found upon him.—A Curious Disciple of the Anti-Vaccinationist Type.*—It is a well-known fact that the greatest sensational advertisers for fame and for money are the quack doctors and vendors of patent medicines; but it is only occasionally that a man who apparently has a right to the title of M. D. gets into print for raising a sensation, and floods the city with pamphlets against well-known and respected usages in medicine. Montreal is at present favored with such an individual.

"About a month ago, when the health authorities, medical faculty and the clergy of this city were working hard in the promotion of vaccination, one Dr. A. M. Ross, M. D., K. S. A., F. R. S. L., residing in Dorchester street, loomed up as an anti-vaccinationist. He was determined to have his views circulated, and, to attain this object, is believed to have issued a sort of paper called the *Anti-Vaccinator*. Under the heading of the paper was the following quotation from Jerome: 'If an offense come out of the truth, better it is that the offense come than that the truth be concealed!' His platform was that the disease was intensified and multiplied by vaccination; that vaccination is useless and dangerous; that it was not a prophylactic against small-pox, but on the contrary, produces its like; and that exemption from epidemics of small-pox, cholera, and other diseases of a zymotic character, is not to be found in vaccination. This platform was followed by an effusion in 'Hiawathan' style, taking up a whole page against vaccination. The pictorial art was also brought into play in some of the publica

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tions, exhibiting the babe being vaccinated by a skeleton in spite of the mother, who was restrained by a policeman; and the horny-handed son of toil being brought to the scratch by the policeman. This was scattered among the ignorant all over the Province, doing untold mischief.

"It was thought by some that the misguided physician was at least sincere in his ideas; but last night it was discovered that his personal practice was not in harmony with his business views. It was learned yesterday afternoon, by a certain Ontario physician who is working in behalf of vaccination in this city, that Dr. Ross was leaving by the nine o'clock evening train for Toronto; and knowing the Doctor's ideas, and suspecting some fun or trouble would happen when the vaccinating officials approached him, the Ontario physician determined to go on the same train, and see how matters came off. Dr. Ross seemed to be totally unconcerned as to those about him, and did not look anxiously around for a pitted face; but he certainly was disconcerted when one of the officials, whom the Ontario physician had posted, asked him for his certificate of vaccination. Dr. Ross looked at the official, and quietly produced one of his cards, which he handed to him. The official glanced at the card, 'ahemmed,' and said he was very sorry, but the card was not a certificate, and he was obliged to comply with the law, and insist upon seeing a certificate. Dr. Ross then looked at the official in a conciliatory manner, and said, 'Have you no respect for a fellow-licentiate?' The official bowed, and replied, 'Dr. Ross, the law is no respecter of persons. I am very sorry, but I must perform my duty.' Dr. Ross then, seeing that he was compelled to do as the official required of him, went into a compartment of a Pullman car, where on removing his sleeve, the Doctor disclosed a vaccination-mark not over a year old. It was a strange disclosure, and spoke volumes for the Doctor's veracity and his beliefs; but the train was flying along, and there was no getting out of the predicament. The official was satisfied, and so was the Ontario physician. Dr. J. H. Rauch, an Illinois State Health official, was also on the train at the time, and appreciated fully the dilemma of Dr. Ross. He said that he was so disgusted that when he got to Toronto he would have the above facts printed in the Toronto papers, and on arrival in Chicago would do the same there, and see that the other papers in the States would make an item of the affair.

"Another strange feature in connection with this affair is, that it is stated that not very long ago the children of Dr. Ross were vaccinated also! Altogether, the anti-vaccination friends of the Doctor will have lost faith in him, unless he can make those telltale marks on his arm disappear."

As this man clearly demonstrated that he did not believe what he said, and that he was a monster in human form who desired that a most terrible disease should decimate his patrons, that he might grow fat on their putrid bodies, and to that end was willing to incite an ignorant mob to destroy the property and lives of their preservers, his false and foolish statements are not deemed worthy a reply.

The second specimen is one Wm. J. McMillan, a professional "woods colt"—a "come-by-chance doctor"—who, without *alma mater*, practices in violation of the laws of the State, and who, in the *Kansas Workman* of July 9, 1885, gives us his pedigree, as follows:

"Suppose that every man of genius required a diploma before he would be permitted to confer a benefit on society. Nature has a college of her own. In it we have seen little [most true]; we have sought the woods, the fields and forests, and from them we have gathered healing herbs, which, if used, will aid nature, and will help to cure disease, which deadly mineral poisons never will."

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As this "natural" does not seem to know that minerals were Nature's first products; that of the sixty-four elementary bodies of the earth, all other known bodies, whether mineral, vegetable, or animal, are only compounds; that vegetables and animals are alike "of the earth, earthy;" that "from dust they came, and unto dust they must return," his ignorance shields him from criticism.

What of the last example? The State of Kansas has created a State Board of Health, into whose hands it has placed the health and interests of the State. This Board with great unanimity passed the order quoted. Over his signature as a member of the Board, this minority incites the people in the name of "free government" to oppose the order, fortifies his action with "personal experience," and ornaments it with the "catch-cry" of "pus from a brute." "See if it is in harmony with the economy a free government should exercise." From time immemorial, minorities have raised the same cry, and based it upon "personal experience." In free government the personal experience of the minority must be subordinate to the personal experience of the majority. Mere experience must be tested by experience, and whatever value it possesses be found in the preponderance. Every charlatan appeals to his experience, his isolated facts; but what do they prove in science? Through all history there has been a tendency in medicine to precipitate the value of experience on the one hand, and of theory on the other. Mere experience or mere theory, isolated deduction or induction, are alike fallible. Principles alone are of universal application. Laws may be inferred from a fact suspected or from a theory evolved, but they must be made the correctors of each other. But were they a thousand-fold more reliable, the practical application of the experience or the theory of a single man must in a republican government yield to the experience or theory of the many. No government is free except when the will of the majority is the supreme law.

We have heard a good deal of "personal liberty," in the recent political campaigns of the State, and have learned to recognize it as the "shibboleth" of the mere politician, and wholly unworthy of the scientist. In Fillmore's Elements of Laws, we find this definition of personal liberty: "Liberty is the enjoyment of those fruitions by the individuals to the fullest extent consistent with the public peace, the public safety, and the public morality. And no individual as a part of the aggregation of individuals, can set up anything as an element of liberty, the enjoyment of which he claims personally, that militates in any degree against the public morality, the public safety and the public peace."

Especially pertinent to the question before us, Dr. J. J. Speed says in an address to the Sanitary Council of the Mississippi Valley, at its meeting in April, 1881:

"Protection to wife and children is quite as important as protection to cattle and birds and hunting-dogs. When serious sickness comes, you call it Providence. It is a

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Providence against which sanitary science guards you. Conscious of the beneficence, we say the common weal demands many things. It demands compulsory vaccination; compulsory drainage, public and private. It demands hygienic architecture; it demands compulsory removal of nuisances, public and private. Absolute liberty is simply antagonism to society—antagonism to civilization. There is no such thing possible as liberty without law. The imperial egotism of I and my, must give place to us and ours. Autocracy in man is not compatible with the general common weal. Savagery may, but civilization does not, recognize the *I will* of personal liberty. One is a liberty which develops selfishness, and runs into license; and the other is liberty regulated by law, and exercises general beneficence. The people and legislators must remember and recognize, as sanitarians recognize, the existence of laws long antedating any legislation, or any personal assumption of ours—laws stamped by the superior form upon nature."

On this principle the temperance laws of the State are created and maintained. Drunkenness is prohibited, and the sale of intoxicants is punished by fines and imprisonment. On the same principle, we isolate the victim of contagion, and prevent his entering the public schools or the public mart, and on the same principle protect the public against the possibility of contracting the most virulent of the contagious diseases. If it is argued by some persons that drunkenness does no harm, that it is pleasant and healthful, or that vaccination does not protect against small-pox, and is terribly destructive, the only answer in a republican from of government is, the majority rules. "*Vox populi vox Dei*" may not be true. Popular opinion may now, as in times past, oppose scientific advances. Nevertheless it is in harmony with the economy a free government should exercise.

"They cannot disease my child with the pus of a diseased brute, while God sees fit to make its cheek bloom with health." That sounds large. Suppose we scrutinize its size. If the Doctor should use bovine instead of humanized virus, or pus instead of lymph, it would make little difference in the logic. Small-pox is only communicated by the pus, lymph, or other molecules of persons diseased with small-pox. Cow-pox is supposed to be the result of the same molecules acting on the "brute," though possibly it may be a specific disease of the cow. Unless protected, on exposure, the child will become diseased by the "pus," diseased molecules of the small-pox patient, and the chances will be as one to two it will die. If it should come in contact with the same molecules after they have been impressed by those of the cow (cow-pox), the chances are they will not harm it, and if they do, as one to a thousand it will not die. Then the wisdom and humanity of this father is, he would a thousand times rather his child should be diseased by the pus of the most loathsome disease flesh is heir to, and die, than be protected by the same "pus" modified by its passage through the cow, and live. Thanks to humanity, most fathers do not see it in that light. As they would prefer the child should eat healthy beef, and live, rather than human flesh, and die, so they would prefer the child should absorb vaccine virus, and live, rather than variolous virus, and die.

Dr. H. I. Bowditch, of Boston, one of America's first sanitarians, well says: "Ignorance, stupidity, or prejudice may doubt the teachings of science,

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but the disciples of Jenner stand by the pustuled bodies of their patients, self-poised, because conscious of absolute protection."

If, as in the language of the veteran sanitarian, Edwin M. Snow, M.D., of Providence, R. I., "No principle of sanitary science is more positively established than this, that there is an absolutely certain prevention of small-pox, which is easily obtainable and easily applied;" or, as Atkin says, "It is clearly demonstrated that vaccination has thrown the ægis of protection over the world in proportion as it has been effectually performed;" or, as Simon tells us, "Whenever vaccination falls into neglect, small-pox tends to become again the frightful pestilence it was in the days of Jenner's discovery; and whenever vaccination has been universally and properly performed, small-pox tends to be of as little effect as any extinct epidemic of the Middle Ages," then it becomes the duty of a State Board of Health, having a "general supervision of the health interests of the State," to inquire how its benefits may be most effectively secured to the people of the State, and how they may best labor to aid in exterminating from the earth the terrible scourge of small-pox.

The efficacy of vaccination is doubted because only a portion of those vaccinated are protected against small-pox, and its propriety is doubted because in a few instances it has been the means of communicating other diseases, or has been followed by evil sequences. The fact that a portion have been, is the best evidence that all may be, protected. Protection lies in the destruction of some element in the body that renders it susceptible to that peculiar virus. If one vaccination modifies susceptibility, vaccination may be repeated until it is wholly destroyed. The fact that in some instances, when carelessly or improperly performed, and not repeated until susceptibility is destroyed, varioloid has been contracted, is an argument in favor of and not against the process; and because untoward results have on some few occasions followed want of care or want of skill, the physician and not the process was at fault. But were such cases vastly more common, they are as nothing compared with the disastrous results of cases unprotected by vaccination.

The people are wont to look upon the operation as a small affair, because members of the profession so consider it. But, small as it is, it is often greater than the skill expended. Care in selecting reliable virus, whether bovine or human, care in the operation, care in examining the result, and testing it by revaccination until no effect follows, are all required to make vaccination a success.

From a careful review of the whole subject by the Illinois State Board of Health, as seen from their Transactions for 1883, they draw the following—

"PRACTICAL CONCLUSIONS AND PROPOSITIONS.

"1st. That small-pox has increased in frequency of outbreak in Illinois, and in the extent of territory invaded in each successive outbreak, during the past thirty years;

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and that such outbreaks are costly in human life and suffering, as well as from a merely material standpoint.

"2d. That such increased frequency has kept pace with (*a*) the natural growth of population; (*b*) the increase of population by immigrants; and (*c*) the multiplication of means and facilities of communication.

"By the first and second of these factors (*a* and *b*), the number of unprotected individuals—*i. e.*, those susceptible to the small-pox contagion—accumulates from time to time, up to the point when the introduction of the contagion from without is sufficient to cause an epidemic outbreak. By the second and third of these factors (*b* and *c*), the contagion is introduced and disseminated whenever the disease becomes prevalent in countries or places with which this country has commercial relations, and especially when, during such prevalence, foreign immigration is above the average.

"3d. That not only may such epidemic outbreaks be prevented with absolute certainty by vaccination, universally and properly performed, but the disease itself might be entirely eradicated, and its reproduction be rendered practically impossible if every individual were efficiently vaccinated in infancy, and the operation repeated at proper intervals of time.

"4th. That in order to secure the universal performance of vaccination in this country, whereby epidemic outbreaks at least may be positively prevented, it is necessary to supplement whatever measures of compulsory enforcement may be deemed advisable by the education of the people to a correct estimate of the value of the operation, and its freedom from evil results, when intelligently and properly performed; such education entailing upon the medical profession and upon sanitary authorities the imperative duty of securing its proper and intelligent performance.

"5th. That compulsory vaccination of all public scholars before admission to the school room, as well as of their teachers, is justifiable if on no other ground than that it is the duty of the State, which in other ways directs and superintends the matter of instruction, to guard against the interruption of schools by the prevalence of small-pox; and in like manner it is the right of the State to demand such precautions on the part of inmates, employés and officers of State institutions as will secure them against the invasion of the disease. So, too, the State may demand that common carriers and others, especially exposed to the contagion and to the risk of conveying it from place to place, shall protect themselves against such exposure and risk.

"6th. That vaccination compulsory to the extent indicated in the previous proposition, in addition to that voluntarily procured by the large majority of intelligent persons, might be made so popular, and its value so apparent, by its proper performance, as to largely obviate the necessity for any other measures of legal enforcement in order to secure its substantially universal performance in all enlightened communities.

"7th. That since few communities are yet so enlightened as not to embrace a certain proportion of negligent, prejudiced or ignorant individuals, compulsory vaccination enforced by legal provision and supervised by competent sanitary authority, is necessary to the present protection of communities from epidemic outbreaks of small-pox, and to the ultimate extinction of its contagion. Neither of these desirable results can be obtained with a disease so exceptionally contagious as this, so long as even a few individuals remain unvaccinated, to become propagators, conveyers and diffusers of the poison. The extreme right of any individual to risk his own health or life would be tenable only so far as the excuse of such right could be demonstrated not to involve risk or injury to others. Such demonstration is practically impossible in the case of small-pox; and it is both the right and the duty of the State and the local authorities to enforce the employment of a measure of protection which, when efficiently and properly performed, has been shown to be adequate against the scourge of small-pox, as was abundantly proven

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during the recent epidemic, by the results of the action, in this direction, of the State Board of Health and of local authorities.

"8th. That the proper performance of vaccination demands in greater degree than is usually bestowed, care in the selection of virus; painstaking in the details of the operation; intelligent, experienced supervision over the progress of the vaccinal disease; and inquisition into the efficacy of the vaccinal protection, by revaccination from time to time.

"9th. That the charges of failure of vaccination as a protection against small-pox, and so much of the hostility to this measure as is not due to ignorance or unreasoning prejudice, have grown out of a culpable neglect of the essentials of vaccination, for which the medical profession and medical teachers are, primarily, and still very largely, responsible. Whenever vaccination is now as skillfully and intelligently performed and supervised as it was by Jenner and his immediate co-workers, it secures as great a degree of protection with as few drawbacks and objections, as did their operations. It is therefore the duty of medical preceptors and teachers to give the proper amount of practical instruction concerning vaccination to their students; and of individual practitioners to invest the operation with the importance and dignity to which the transcendent value of its results entitles it.

"10th. That the alleged deterioration of humanized virus, and consequent loss of protective power, may be true only to the extent, to wit: that every successive transmission of the virus through the human system increases the chance that want of necessary care and attention may result in the use of virus which is not the product of a typical vaccination, and which may thence be wanting in the normal degree of protective power. It is incumbent, therefore, upon every vaccinator to fully assure himself of the virus; and to this end there is no more certain way than by propagating and preserving it for himself. Should there at any time arise a doubt as to the character of the supply, it must be promptly discarded and a new source established by recourse to bovine virus. A few removes from its original bovine source will readily modify its severity; and for many reasons such virus, humanized to this extent, is practically preferable to any other.

"11th. That the relative advantages of bovine and humanized virus are still *sub judice* as to the most important point, namely, their comparative protective power. Humanized virus has been tested for more than eighty years; bovine for about sixteen. The former, descended in an unbroken line from the original operations of Jenner, still produces the same typical results, the same regular sequence of phenomena, as those obtained by Jenner himself; the latter produces almost as many varying results as there are propagators. The product of some of these is uniformly excellent, and its productive power doubtless as perfect as that of the Jennerian lymph. In cases of emergency, however, when promptness of action is important, the preference must be given to the humanized. As to freedom from communicating other disease, it is abundantly proven that it is a physical impossibility for pure vaccine matter, either bovine or humanized, to produce any other disease than true vaccina; that the vaccinal disease is as truly *sui generis* as is small-pox itself, and cannot be converted into, or produce, any other constitutional disease.

"12th. That since small-pox occurs more than once in the same individual — thus proving the susceptibility may be renewed — revaccination is the absolutely essential complement of primary vaccination; and should not alone be performed in all cases at or about the period of puberty, but should be repeated on all occasions of exposure, as well as during the epidemic prevalence of small-pox, in any case where the sufficiency of the vaccinal protection may be the subject of doubt.

"13th. That while on the one hand, with the exception of an infinitesimally small number of insusceptible individuals, every unvaccinated person would contract small-pox

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in the course of a natural lifetime, if exposed to the contagion, and fully one-half of those attacked would die, while of the survivors a large number would be hideously disfigured, maimed, and disabled, on the other hand, if effectually vaccinated and revaccinated, an equally infinitesimal number of hyper-susceptible individuals would contract the disease on exposure, and of this small number less than one in a hundred would die. La Condamine states that one-tenth of the human race, on an average, died annually of small-pox before the discovery of vaccination; during which period, in the language of Macaulay the disease was always present, filling the church-yards with corpses, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to her lover. For this devastating and constant pestilence, Jenner substituted a mild affection of only a few days' duration, never causing death, suffering, or disfigurement, when properly and intelligently produced, and conferring an immunity from the graver disease proportionate to its thoroughness and efficiency. To neglect or oppose its universal introduction, is to carelessly, ignorantly or criminally invite avoidable suffering, disaster, and death."

It would seem that such deductions, derived from abundant data, need only be brought to the attention of the public, and especially parents and those having charge of children, to insure proper and general vaccination; and yet the experience of the ages has taught us that with many persons neither personal interest nor the interests of those dearest to them is sufficient stimulus to demand timely protection against a remote and uncertain danger. Only the intervention of the State can protect them and the community in which they reside against their heedlessness, carelessness, or willful disobedience. There would be no need of law, as "law is only a terror to evil-doers." But while such persons are found it is the duty of organized society to protect itself against them, by legal enactment.

If a State board of health has any *raison d'etre*, it is its duty to make ample provision for the prevention of a disease that has, when unrestrained, destroyed one-tenth of the entire population of the globe, and one-half of those it has attacked, leaving the surviving disfigured and maimed, and over which preventive measures have been proven to hold absolute control, vaccination securing more positive protection than small-pox.

From another standpoint, a board of health is inexcusable in failing to provide against the destruction of this most loathsome destroyer. While it is its duty to preserve the life and health of the people for the sake of health and life, it is its duty as well from an economic standpoint to protect the State against the enormous pecuniary losses incident to such a scourge as small-pox. To illustrate the cost to the State of such epidemics, we give two examples:

Dr. Benjamin Lee, in an exhaustive paper, read before the American Health Association, November, 1875, estimates the cost of the small-pox epidemic in Philadelphia, in 1870–1–2, at $16,835,977, (excluding the item "loss by death.")

Dr. John H. Rauch, Secretary of the State Board of Illinois, says: "In that epidemic there were 20,065 cases, with 4,664 deaths, making an average cost per case of $839.12, actual and constructive cost both included. On

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the same basis, the 6,588 cases in Chicago, covering a like period of time, would have cost $5,528,122.66."

The cost of vaccinating and revaccinating at public expense, every ten years, every person in these cities, would have been as nothing to the loss estimated in these three years.

In providing for the preventive treatment of small-pox, the State must provide for the supervision and supply of pure and reliable lymph, thus removing a ground of complaint by the people against the character of the virus, and securing certainty of result whenever the vaccination is properly performed; and it must provide in every city and town competent persons, whose duty it shall be to perform, upon a given day of each and every week, gratuitous vaccination and revaccination, to the impecunious, until a certificate is given that they are no longer susceptible to the virus. That the State may be thoroughly protected against the disease, we would suggest the following rules:

1st. Neither ignorance, poverty, nor inaccessibility, shall prevent necessary vaccination to every child in the State.

2d. While Jennerian lymph of known purity may be used, (and should be, where prompt results are required,) that no uncertainty, capricious judgment or exigency may interfere with the proper supply of pure vaccine lymph, there should be a State institution, under the direction of the State Board of Health, for the propagation and supply of reliable bovine virus.

3d. The State should appoint competent physicians in every city and town, who upon a given day in each week shall vaccinate the impecunious at public cost.

4th. Such vaccination should be repeated every month until a certificate is given that the person is no longer susceptible to vaccine virus.

5th. The State Board of Health should from time to time, for the instruction and encouragement of the people, disseminate such information as would make vaccination acceptable and desirable.

6th. The laws of the State should enable and require the proper authorities to secure the fullest execution of the vaccinal laws.

The State of Kansas having recognized as one of the great interests of the State the proper education of its children, and having not only made abundant provisions for their education, but made it compulsory, the State Board of Health recognized that it was clearly the duty of the State to protect the children thus gathered into the schools against so terrible a scourge as small-pox, to protect the schools against interruption from the presence of the disease, and to protect the community against the disease occurring in the schools, from which it might be so readily and widely spread; and as by the act creating the Board it is required to "supervise the health interests of the State," it passed the following order:

"That by the authority vested in the Board it is hereby ordered: That on and after October 1st, 1885, no pupil shall be admitted to any public school in this State without presenting satisfactory evidence of proper and successful vaccination."

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The importance of this rule was not only apparent on general principles, but was emphasized by the results of similar laws enacted by the Boards of sister States. Thus the State Board of Illinois reports:

"When the school-vaccination order went into effect, January 1st, 1882, nearly sixty-nine per cent., or over 490,000 of the enrolled scholars in Illinois, were entirely unprotected against small-pox by vaccination, or had again become susceptible through failure to revaccinate at the proper time. Within sixty days, that is by the 1st of March, 1882, there was less than six per cent. of unprotected and susceptible remaining among those in attendance, and the frequency of small-pox and varioloid among public-school children had been lessened more than one-third, while the mortality rate of cases was reduced from 16.5 per cent. to .9 per cent. On the one hand, the number of cases was reduced, owing to the general vaccinal protection; and on the other hand, the cases which did occur were milder and less fatal, because of the modifying effect of vaccination. The small-pox reports made to the Board from all parts of the State during the four years, 1880–83, show that the deaths among unvaccinated school children were at the rate of 48 in every 100 attacked, while the deaths among vaccinated school children were only in the proportion of nine-tenths of one per cent. It is difficult to conceive of a stronger argument than these figures present for the enforcement of proper and successful vaccination as a prerequisite to admission to the public-school room."

Since the passage by the State Board of the order for school vaccination, Attorney General Bradford has given the opinion that "such a regulation can only be considered under the law, as it at present exists, as merely advisory." In other words, the State Board of Health of Kansas has no more power to secure the State against the invasion of disease, than was possessed by its members in their individual capacity before its organization. If such is the law, before the State can realize the benefits the Board is designed to confer there must be important amendments to it; and it is respectfully submitted that the Board should take such action as will tend to secure their passage at the ensuing session of the Legislature.

CONTAGIOUS DISEASES.

BY J. MILTON WELCH, M.D., LA CYGNE, KANSAS,
Member of the State Board of Health.

Of the real nature or cause of contagion or of contagious disease, but comparatively little is known. Scarcely more than to determine that contagion manifests certain peculiarities which are very constant, has heretofore been learned. Owing to the difficulties that are encountered in the investigation of contagious disease, but slight additional knowledge has been acquired by recent investigators of the cause of contagion; and hence, unanimity of opinion does not prevail respecting this subject. So, search after the nature or cause will not be attempted, but attention will be directed to the consideration of the peculiarities exhibited by these diseases, and to the means to be observed in modifying and controlling them.

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Our subject includes the idea of disease in general, and that of a particular kind to which the property of contagion gives a specific character. The peculiarity which gives rise to the distinction of contagions is the property these diseases possess of "transmitting a disease from one person to another, by direct or indirect contact." Infection is used to imply the same thing, as it is found that medical writers employ the two words interchangeably. Infectious diseases may be contagious, and contagious diseases may be infectious, and a disease may be both contagious and infectious. It will not be necessary to discuss different theories that have been advanced to account for the matter of contagion or the mode of its conduction from one person to another, for such discussion would add nothing perhaps to what is already known. Some reference to some such explanations may, however, be made as we go along, to indicate what opinions have been entertained.

There are two classes of contagion to be recognized. One is that which is communicated through the medium of the atmosphere laden with contagious elements, and not necessarily requiring the immediate contact of one person with another: as in small-pox, measles, whooping-cough, etc. The other is where actual contact is necessary for transmission of a disease from one person to another: as in syphilis, gonorrhœa, itch, etc. A virus seems to be the cause of a specific local affection in diseases of the latter class; while in the former, a disease is created by an enervation or a poison of some kind which affects the entire organism, and therefore may be termed a general or febrile disease. But whatever may be thought to be the different ways by which the system is infected, it is always by contact with the cause of the disease. The distinction between these two classes is more apparent than real, when the initial point at which the contagion begins to influence the system is considered. Contact with the elements of contagion, in either case, is necessary for the communication of disease. So long as contact with the germs of these diseases is avoided, so long will freedom from infection prevail. A theory heretofore advanced, and to some extent accepted at the present, to account for the transmission of infectious diseases, was the existence of a diffused condition of the matter of contagion in the atmosphere. It would thus be carried from one person to another, when it would be inhaled, absorbed, or imbibed by the system. Finding its way to the blood, it would permeate the fluids and tissues of the system; and by its simple presence, like a ferment, it would create a specific contagion, which in turn would be competent to communicate the disease to others who had never been subjected to its influence.

Another theory has in a measure been adopted by many, in which micro-organisms play a conspicuous part. Nature it is said abhors a vacuum, and the infinitesimally small must be filled. The place assigned to these micro-organisms is the indefinable border-land between nothing and one remove from nothing. In accounting for the cause, not only of contagious but of many other diseases, these infinitely small particles of protoplasmic material

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have assumed wonderful proportions; and they continue to grow, if not in actual dimensions, at least in importance, in the minds of a class of pathogenic investigators, till scarcely a disease now set down in a nosological list can be named that does not have its bacteria, micrococci, bacilli, spirilli, or some other germ which is thought to be the cause of the disease. Micro-organisms may be pathogenic in the diseases in which they are found associated; but further investigations will be necessary to determine whether they are or not. The mere fact that they are found in greater or less numbers associated with a disease, is not in itself sufficient to warrant the acceptance of the theory that they are the cause of it. Nor will it be sufficient to establish their pathogenic importance to say that any animal liable to a disease, injected with certain cultivated germs, will come down with that specific disease in which those germs had originally been found associated; for a poison has been found to be developed in the cultivating fluid during the process of cultivation. This poison may attach itself to the germs, and be transferred along with them when injected into new organisms. And may not this poison, instead of the germs, develop the conditions favorable to the growth and multiplications of germs, like those cultivated, which may be already infesting the new organisms? Berdez, and Nicati, and Rietsch, and Pouchet, have all found poisonous substances in the liquids which have been used as nutrient media for pure culture of Koch's comma bacillus. And investigations prove that these poisonous substances are not confined to Koch's comma bacillus, but that "it shares this with a common septic bacillus subtalis," and "with Finkler's comma bacillus." Then may not these toxic properties give rise to the development of germs already infesting an animal or a person before the foreign germs were transplanted? And may not the process of cultivation, instead of the germs, give rise to those poisonous properties?

In discussing "the relations of micro-organisms to the infectious diseases," Klein says that Koch maintained that "no observation can be said to be complete, or . . . in no instance can it be said to have been *satisfactorily proved* [italics his] that a particular infectious disease is due to a particular micro-organism, if any of the following conditions remain unfulfilled: (1) It is absolutely necessary that the micro-organism in question is present either in the blood or the diseased tissues of a man or of an animal suffering or dead from the disease. (2) It is necessary to take these micro-organisms from the nidus, from the blood or the tissues, as the case may be, to cultivate them artificially in suitable media. (3) After having cultivated the micro-organisms for several successive generations, it is necessary to reintroduce them into the body of a healthy animal susceptible to the disease, and in this way to show that the animal became affected with the same disease as the one from which the organisms were originally derived. (4) And finally, it is necessary that in this so affected new animal the same micro-organism should again be found."

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Every one of these desiderata must "be satisfied" before it can be "inferred with certainty" that a particular micro-organism may probably be the cause of a particular disease.

From these quotations it will be seen how cautious investigators are in accepting, as established, theories that may admit of doubt. That there remains a question as to whether micro-organisms, or that something else, the toxic properties developed during cultivation for instance, may be the cause of contagious diseases, must be conceded. There can, however, be no special objection in accepting as provisional this theory, until the true explanation of the cause of these diseases shall be established. If not permitted to enter the precincts of the impenetrable and discover the cause of disease, the privilege is at least granted of approaching so near to the mysterious portal that the point from which issue the maladies that bring terror to the race may be dimly seen.

It has been ascertained that infectious diseases display certain peculiarities. And those which have been designated as febrile, obey certain laws which seem unalterable. Each one of the contagious diseases has its own course, time for incubation, rise, progress, decline, and termination; and after passing through these different stages, leaving, as a result, a protective indemnity against subsequent infliction. This last-mentioned peculiarity applies only to febrile infectious diseases, as measles, scarlet fever, etc. Other diseases, classed as contagious, gonorrhœa, syphilis, itch, etc., leave the system in no condition of exemption from future or subsequent exposure.

All persons are not alike impressible with contagious diseases. There seems to be a difference in the susceptibility to the influence of these diseases in different persons, and of the same person at different times. A person may for a long time, though repeatedly exposed, resist a contagious influence, and then, perhaps, when least suspecting it, may be prostrated by it. We shall not trouble you with a discussion of theories of how the system is protected by once being subjected to the course run by one of the febrile contagious diseases; but whatever may be said as to the cause, rise, progress, decline and power to protect of contagious diseases, the practical question, and the one likely to interest us most, is, can these diseases be controlled, and their spread prevented?

In considering these questions, some things, no doubt, will be insisted upon that seem to have been allowed to fall into disuse and neglect. Can these diseases be modified in their influence upon the system? Can observance of hygienic measures have any influence in fortifying the system against these diseases, so that but a modified suffering or an entire indemnity shall result? These questions may be answered in the affirmative, and many means not usually thought worthy of attention may be employed to insure such results.

A few of these means may be indicated, and the relative benefits of each pointed out. The first to be noticed is that of isolation. This means of con-

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fining contagious diseases, and hence preventing their spread beyond very narrow limits, is the separation of individual cases. Whenever complete separation can be secured, it is one of the effective means of preventing the spread of these diseases. Even the spreading of small-pox may thus be prevented, and its virulence may be confined to very limited areas, if in addition to these means cleanliness in and about the premises prevails. Where filth and squalor are marked features of the surroundings, isolation will be shorn of much of its effectiveness. Well-nourished, well-clothed and well-housed people are remarkably exempt from contagious diseases; and where hygienic requirements are at all obeyed in connection with these conditions, one of a family, if unfortunate enough to contract a contagious disease, would scarcely communicate it while confined to a well-ventilated apartment, to any other member of the household. Where great numbers had been affected by a contagion, or were suffering from it, separation of each case from the rest might prove to be impracticable. Still, in the early breaking out of the disease, isolation of the infected might prove to be of much worth to those who had not been exposed to the contagion. This is a means of prevention, whose merits are in proportion to the completeness of separation that can be accomplished of individuals in any case. While but little benefit may result in some instances from the observance of these means, still that little might prove worth all the effort it might cost.

Another means of preventing the spread of contagious diseases, is that which is known as quarantine. While originally it had reference to the time which a ship was required to forego intercourse with the shore, it has now no such restricted application. In general, it is now used to include restraint of intercourse or travel placed upon the inhabitants of a city, town or community infected or suspected of being infected with a malignant or contagious disease. It has been said that this is a very inefficient means of protection, since it seems to be impracticable to enforce the quarantine against individuals of a city or commonwealth. To make it effective would require the employment of all the people in any community; and even then complete security might fail of realization. But no implication is intended that it is no means at all of confining a disease to a locality. While it may accomplish but little, that little might prove to be one factor in a scheme for confining disease that will insure safety from the contaminating influences of an infectious disease. Whenever a community is threatened with invasion, every means known that promises, even in a small degree, to aid in preventing the spreading of health and life-destroying distempers should be resorted to. In a city, where a square or ward is infected, or where the inhabitants may be threatened with infection, quarantine, under the supervision of an efficient health officer, supported by the community, and aided by a willing and energetic corps of policemen, might prove of inestimable worth to the people. Of course hygienic measures should not be neglected. Streets and alleys should be cleaned, and the filth either removed or burned.

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Yards and outhouses should be cleaned and disinfected, and thus be brought to aid quarantine in controlling and stamping out any contagious disease. Quarantine is certainly one of the means to be used in controlling the spread of contagious diseases.

Of many contagious diseases, there is but one claiming special means of protection. All other contagious diseases are relegated to hygienic measures and the relief that the medical profession can give, in the way of treatment, for protection. Such measures, with respect to small-pox, have but little confidence placed in them. Not because of any want of virtue possessed by these measures, is this so; but because almost everybody seems to have been misled respecting the true value of vaccination. Hygienic measures and radical treatment are just as efficient in modifying small-pox and preventing its spread, as such measures are when applied to the other contagious diseases. Vaccination is worth something, and for that reason ought to be employed when an epidemic of small-pox threatens a community, just as other measures are employed. This measure seems to rob small-pox of some of its virulence which the unmodified form often assumes. The modification which it is supposed to work is claimed to be of sufficient benefit to warrant the universal employment of vaccination. But just how far one is justified in trusting to this one measure alone, is a question in the minds of quite a number of respectable and intelligent people, and as a consequence two opinions are entertained by the people and well-informed practitioners of medicine, as to whether vaccination should by statutory interference be made compulsory or not. While not opposed to the employment of vaccination, I am disposed to array myself along with those who object to its enforcement by statute.

It will not be necessary to burden this discussion with reasons for such opinion, since the design is to give simple statements of some of the best means to be employed to modify, control and restrict contagious diseases when once a community is threatened by invasion, rather than to indulge in an extended discussion of how any one of the contagions, to the exclusion of the rest, might be especially modified. Our object will be accomplished when we shall have but little more than called attention to and recommended the employment of at all times, and especially when an epidemic disease threatens, any measure that may promise to benefit health or prevent disease. Such measures are designated as hygienic. They are not only to be employed alone, but should always be associated with any special means that may be thought worthy of adoption in any contagious disease. Whatever security that may be thought to result from isolation, from quarantine, or in favor of vaccination as means of protection or modification of contagious disease, there remains the fact that a due observance of what are considered usually to be hygienic measures will insure more general and special benefits. Cleanliness of individuals is the great desideratum. If each individual of a community should give attention to personal cleanliness, the community

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itself would be clean, because the units of which it might be composed would be clean. But for the safety of a community, cleanliness should be extended to include the houses, the yards, the barns, the outhouses and vaults; and in towns and cities, alleys, streets, sewers, tenement houses, stables, public buildings of all kinds, and cisterns and wells should all be kept in a state of cleanliness. As this is a species of godliness, it might be thought that our food and our drinking-water and our clothing and the air which we breathe in apartments in which we spend our time day and night, should all be clean. Cleanliness fully realized in all these particulars, would well-nigh banish disease, and inaugurate a healthfulness that might defy the most malignant of these infections.

But society, as organized, is not in a condition to fully achieve the benefits promised by any one means of protection from disease; and hence must resort to the employment of any means which promises to aid in accomplishing the beneficial ends sought. The food should not only be healthful, but it should be properly prepared. A mixed diet, composed of vegetable and animal, is best; and where it can be secured should always be preferred. An exclusively vegetable diet is not so conducive to that vigor of mind and body that one ought to expect from full feeding, as a regimen of animal food principally combined with vegetable would give. Ventilation of apartments should always be secured. Many people are impressed with an idea that night air is not so wholesome as the air during the day. This is a great mistake. We have as much night as day air to breathe. We live as much in night-time as in the day-time. Darkness, no more than light, renders the air we breathe wholesome or unwholesome. All animated nature has always been subjected to this equal distribution of light and darkness; and yet it has developed in accordance with the law of progress, and will continue to do so. When one objects to ventilation at night-time, it certainly is always from want of consideration. Keep apartments at night as well ventilated as at day; then there will soon cease to be heard the expressions of fear of night air. Every one concedes that drinking-water should be pure. But how to obtain pure water at all times is a question not easily answered. Perhaps it is impossible so to obtain it at all times, since the necessities for it may be so urgent that it would be impracticable to determine its purity before using. But some means of purification may usually be resorted to, as that of filtering or boiling; and this should always be done whenever water is suspected of being impure.

But the space assigned to the discussion of this subject forbids that the consideration of exercise, rest, sleep, clothing, release from mental worry, etc., as means of fortifying the system against invasions from infectious diseases, which their importance would justify. They are factors, and important ones too, in any scheme for the prevention of the spread of contagious diseases. Contagion is a cause of disease that often baffles the best conceived measures of prevention known. No one special means proves effective in all

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cases, and I almost said in a majority of cases, when epidemics of contagion introduce themselves as unwelcome visitors in a community. Isolation, quarantine and vaccination are often defective in preventing disease, until associated with other measures to which attention has been called. The great trouble in confining and stamping out contagious diseases is the fancied security in which the people indulge. If they could be awakened to a sense of the importance of maintaining in their every-day life the hygienic measures which are so effective in warding off not only disease in general, but contagious diseases in particular, it would not be long until these diseases would be known only as the plague of London is known in history.

WATER PURIFICATION.

BY COL. WM. TWEEDDALE, CIVIL ENGINEER, TOPEKA.

When in considering the question of water supply for domestic use, pure water is spoken of, the idea suggested is of water "sparkling and bright as it flows from the mountain spring, or as drawn from the old farm well in the granite hills of the Eastern States." Water thus obtained, while usually excellent in quality, is almost sure to be limited in quantity. As a rule, a supply of water sufficient in quantity for any desired purpose of a domestic character can only be procured from a source possessing some undesirable qualities.

Natural waters usually contain a variety of foreign substances. These are of two kinds, inorganic and organic; and these are found in two states, viz.: in suspension, as mud or vegetable debris in visible form, and in solution, as in the case of dissolved carbonate of lime in water, forming our ordinary hard water. These foreign substances are also characterized as impurities and as pollutions; the first referring to that found in natural waters, and the second to contaminations artificially produced. Inorganic impurities in water, while objectionable for domestic and manufacturing purposes in an economic sense, are not usually considered deleterious to health. It is from the presence of organic matter in water that danger to health is usually apprehended. Based on its origin, organic matter consists of two kinds: vegetable, usually found in natural waters, and characterized as impurities; and animal matter, caused by the waste of towns and cities, characterized as pollutions. Surface waters, containing considerable quantities of vegetable matter, are found at times to be very unwholesome, while at other times no injury is found to be attended with their use. The injurious effects arising from their use are diarrhea and malarial fevers. This lack of uniformity in the effect of organic matter in water is accounted for on the theory that under certain conditions the

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vegetable matter in water develops certain living organisms known as bacteria, while the absence of these conditions fails to develop them, and a change in the conditions results in the destruction of these organisms.

Of late years the attention of sanitarians has been principally directed to the effect on health, of water polluted by sewage. The generally-received opinion is, that water thus polluted may be and often is the inciting cause of certain specific diseases. Leaving the determination of this question to medical experts, we are justified in accepting the following rules as governing in the selection of a water for domestic use: It should be free from all substances which are known to produce any injurious effects on the human system, or are suspected with good reason or on good authority to produce such an effect. The water should be as far as practicable free from all substances and from all associations which offend the general æsthetic sense of community, even if there is every reason to believe that it is in itself perfectly harmless. It is very seldom that natural waters in quantity can be procured of the desired quality, and although a water polluted to any considerable extent by sewage is not susceptible of purification on a large scale, so as to make it suited for domestic use, still the character of many natural waters may be materially improved by proper treatment. Again, there are circumstances which render it absolutely necessary to use a bad water or none. And in such cases purification must be accomplished if possible.

We will now consider in order the various methods in use for improving water for domestic and manufacturing purposes: 1. Sedimentation; 2. Filtration; 3. Chemical Process; 4. Distillation.

I. *Sedimentation.* Foreign substances in suspension in water can be removed to a greater or less extent by subsidence and by filtration, either separately or conjointly. While substances in solution require for their removal the added effect of heat, chemical reagents, and mechanical appliances, which first change these substances from in solution to in suspension, then by aggregating the particles together they either precipitate by subsidence, or may be filtered out, the subsidence of suspended matter in water is a very simple process. The rate of descent of the particles will increase with their specific gravity, and decrease with the fineness of the particles; that is, as a particle of matter diminishes in size, its weight diminishes more rapidly than its volume or area of resistance; for which reason, in the purification of water containing large quantities of mud, as in cities on the Mississippi river, certain substances and processes are in use which have for their object the coagulating and agglomerating of the particles of suspended matter into larger masses, and of greater density—thus hastening their precipitation Of these, alum, lime-water, salts of iron of various kinds, and agitating with air under pressure, are examples.

II. *Filtration.* The purification of water on a large scale for city supply by means of filtration has become quite general in Europe, and to a limited

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but increasing extent in this country. The filter-beds are of dimensions depending on the requirements. They consist for the most part of from three to six feet in thickness of gravel, and sand, of varying degrees of fineness, superimposed on each other, the finer layers being above. The rate of descent of the water through the filter varies with the amount of impurities in the water; ordinarily it does not exceed six inches vertically per hour, at which rate one square foot of surface of filter-bed will furnish about 90 gallons of water in 24 hours.

When the quantity of sediment in the water is large, settling-basins are an essential accompaniment of filtration. The public purification of the water supply of St. Louis, Missouri, is by means of subsidence. At ordinary stages of water, 94 per cent. of the sediment is precipitated in 24 hours; during floods in the river, 1½ per cent. of the bulk of the water is sediment, some portions of which at such seasons is so fine that no amount of settling will remove it. The presence of sediment in water, while highly objectionable for manufacturing purposes, is not necessarily deleterious to health, except to people not accustomed to its use; to such the tendency is to produce diarrhea.

The action of filters is for the most part that of strainers, although it is claimed that the organic matter in the water is to some extent destroyed by the oxygen contained in the interstices of the material composing the filters. Recognizing the importance of removing the organic matter contained in solution in the water, other substances, having an oxydizing effect, have been sought for to replace the same in whole or in part. Of these, wood charcoal possesses the property of condensing oxygen more than any other cheap substance. Animal charcoal, however, is preferred, for the reason that in addition to being a strainer and oxydizer, it also acts as a precipitant.

In England, Spencer's carbide of iron has been used in combination with sand, with fair results. The objections to its more extended use were the expense, and the water requiring to be preceded by sand filtration.

In 1857, Dr. Medlock, after a very exhaustive series of experiments, devised a process for the removal of organic matter from water by means of metallic iron in the form of iron wire suspended in the water to be purified. The effect was to change the organic matter from in solution to in suspension, and then passing it through a filter to remove the suspended matter, care being required to be taken with the iron to prevent its becoming rusted. The time required for contact of the water with the iron was from twelve to eighteen hours.

The next advance was with the use of carbonated silica in the form of slabs; their use was restricted to domestic filters. Results were said to be good so long as the filters were clean.

This was followed by the use of Bishof's spongy iron. It was in the form of granules, mixed with the sand of the filter-beds. The theory of its action was, that the iron, in the form of a ferric salt, by its action on the organic

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matter in the water, became ferrous; this in turn by combination with the oxygen in the water again became ferric; being superior to charcoal as an oxydizer, in that its action was continuous, so long as the filter remained clean. An attempt was made at Antwerp to use this process on a large scale, but failed by reason of the great length of time required for the water to be in contact with the iron, necessitating large and consequently expensive plant. Subsequently, an arrangement embodying the same principle was tried with marked success. It consisted of a series of iron cylinders, with projecting shelves on the inside. These cylinders were two-thirds filled with iron-borings or filings; the water was caused to pass slowly through the cylinder, which in the mean time was revolved, thus bringing each particle of the water into direct and continued contact with the iron. The first obvious effect upon the impure water was to deprive it of color; a minute quantity of the iron was dissolved or worn off by the attrition of the particles on each other; probably as ferrous oxide, which, after a short exposure, and combination with the oxygen in the water, became ferric oxide, which was removed by filtration. The time required for purification was about six hours.

Prof. Leeds, of Philadelphia, after an extensive series of experiments, devised a process for the purification of water from organic impurities by means of air forced by an air compressor into the mains supplying the city with water, the oxygen in the air combining chemically with the organic impurities in the water, oxygenating them. The results are said to be very promising.

Repeated attempts have been made by means of high-pressure filters and self-cleansing filters to provide for a system of filtration for domestic use; and in some cases attempts have been made to have them serve instead of filter-beds for purification of water on a large scale. Foremost of this class are those manufactured by the Newark (N. J.) Filtering Company, under the Hyatt patents. They consist of a series of iron cylinders with shelves containing sand, through which the water passes. The cleansing of the filters is done by means of counter-currents, which wash away the accumulated impurities. To increase their efficiency, a mixture of iron-borings, ground in a paint mill with lime, was injected in the form of a paste into the supply pipe of the filter. This, not proving satisfactory, was replaced by a solution of sulphate of iron, which in turn was abandoned in favor of a solution of alum. The object sought by the use of the above substances was to coagulate the impurities in the water preparatory to filtration. This arrangement was tried at Antwerp, but failed. It is said to be used quite extensively in the cities of the lower Mississippi. The use of the above-mentioned substances in the manner described, while they might be to some extent effective for the purification of sewage, would be wholly unreliable and perfectly worthless for the purification of potable water, by reason of the sulphuric acid of the sulphate of iron, or of the alum, combining chemically with the lime in the

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water, whether added as hydrate or present as a bicarbonate, forming calcic sulphate, which renders the water permanently hard.

While it is evident that high-pressure filters may serve effectively as strainers, there are two reasons why they may not be safely depended upon to completely purify water for domestic use:

1. Regularity of action of any filter is in inverse ratio to the pressure of the liquid on the filter; increase of pressure will cause increase of flow. This increased flow necessarily takes effect to a greater extent on the finer particles of the materials composing the filter; these finer particles become successively ruptured, until the whole apparatus is reduced to a system of minute channels, through which all impurities below a certain size freely pass. In the mean time, the less-yielding particles of the filter are gradually being filled with the impurities, which agglomerate and pack into an impervious mass.

2. In consequence of the continued free passage of the water through the filter by reason of the pressure, timely warning of the impeded action of the filter is not given. Self-cleansing, as applied to filters, is misleading. The method usually relied upon is to reverse the flow of the water through the filter from time to time, by which means the accumulated impurities in the filter will be washed away; and to the extent that this is done there is so much gain. The bulk of the coarser impurities will in this manner be removed, while the finer particles will have become packed until they are impervious, and will remain.

Dr. Lewin, of Munich, who has carefully studied the subject of the purification of water by means of filters, requires a filter to possess the following requisites: It must absorb not only matter in suspension, but also all substances physically and chemically latent; and must so retain them that additional impure water or clean water cannot wash the impurities in the filters out; or else the filtration must be carried on in a form or in such a manner as not to affect the purity of the water. The arrangement also should be such as to retain the property of purifying water for some considerable time without deterioration. While assenting to these requirements, we must confess with Dr. Lewin, that such a system of filtration is unknown. At the late Social Science Congress held at Manchester, the utility of domestic filters was seriously questioned by several speakers. They have come, they say, to be regarded as a sort of fetich, which, without cleansing or attention of any kind, will go on indefinitely yielding clean water from dirty. Dr. Lewin says that it is only through the scarcity of published reliable experimental results, or popular ignorance of them, that it has been possible for inventors and vendors of filters to spread the most wonderful reports concerning the capability and performance of their apparatus.

Prof. Frankland, chemist for the Rivers Pollution Committee of Parliament, has lately been experimenting upon the relative efficiency of filtration with the best-known material for that purpose; of agitation with solid

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particles mixed with water; and by precipitation as a means for removing living organisms from water. The results were, that while under the best possible arrangements filtration proved successful, it soon lost its power, and required renewal. Agitation with coke in the water completely destroyed them, and precipitation by means of the Clark process was very effective in removing them.

III. *Chemical Process.* When soap is rubbed in water for cleansing purposes, it forms a lather with rain-water, and a sticky, curdy substance with water that has been for some time in contact with carbonate of lime. The water with which soap forms a lather is termed soft water, and that forming a curdy substance is termed hard water. When the hardness is due to the presence of bicarbonates of lime and magnesia, the water becomes soft by boiling, because by the action of heat the bicarbonates are dissolved into carbonic-acid gas, which passes off with the steam; and the insoluble carbonates, which are precipitated by deposition, forming incrustation and sediment. The same result may be produced by the addition to the hard water of so much lime-water as will be required to combine chemically with the carbonic acid which held the carbonates in solution, and which was thrown off by the heat, thus changing the soluble bicarbonates into the insoluble carbonates, which by quiescence are precipitated.

This process was invented by Dr. Clark, of Aberdeen, and has been used in England for the purification of water for the supply of towns: After thorough mixing of the lime with the water to be purified, it was allowed to settle, which required from twelve to twenty-four hours, depending upon its freedom from mud. When very turbid, the treatment required to be preceded by filtration through sand. When settled, the water was drawn off from the top. As the sediment was precipitated, it dragged down with it and removed from the water a large amount of the organic matter present; and if the water was colored by peat or clay, a very appreciable discoloration was effected. An analysis of the Canterbury water before and after purification showed that 16 grains of carbonate of lime per gallon was reduced to $1\frac{35}{100}$. The following examples of analysis given by Wanklyn, will indicate to what extent the organic matter is removed by this process:

		Free Ammonia.	*Albuminoid Ammonia.*
1.	Before Clark's process	.01	.05
	After Clark's process	.01	.02
2.	Before Clark's process	.025	.22
	After Clark's process	.030	.08
3.	Before Clark's process	.015	.22
	After Clark's process	.020	.07

It is to be observed that the organic matter removed can be proved to be present in the carbonate of lime precipitated.

The Clark process has not been so generally used as its merits would lead us to expect. The reason seemed to be the very great length of time required for precipitation, necessitating expensive plant when the quantity

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of water required to be purified was large. Several attempts have been made to improve this process by hastening the precipitation. That known as the Clark-Porter process has been successfully used in purifying water for use on a railroad in England. It consists in first mixing with lime-water, and then filtering through a series of disks covered with cotton cloth. This process, it will be observed, has no effect on the removal of sulphates.

The writer has devised an apparatus which has proved very effective in not only the removal of carbonates, but also of sulphates. It consists of a series of three tanks—one lime-water tank, and two tanks which are alternately purifying and storage tanks. Provision is made by means of pipes to supply and remove the water to and from the tanks. A heater is placed on the top of the purifying tank, through which the water to be heated passes, and is heated by means of the exhaust steam from the engine. The degree of heat required for prompt reaction, depends on the character of the water. The range is found to be from 80° to 140° Fah. The apparatus is provided with an air compressor, which, thoroughly mixing the reagents with the water, causes flakes of suspended carbonate to aggregate together, and by reason of their increased density hastens their precipitation. The reagent used for the removal of the sulphates is carbonate of soda; this, by double decomposition and recombination, changes from the hardly soluble sulphates of lime and magnesia to the very soluble sulphate of soda, and the insoluble carbonates of lime and magnesia which are precipitated.

The process of treatment is as follows: The tank being filled to a point that will allow of the lime-water being added, and heated as required, the required amount of soda, having been previously ascertained, is dissolved in water and poured into the tank. It is then agitated for five minutes. After five minutes for quiescence, it is tested with a reagent for excess of alkalinity, and corrected if necessary. Lime-water, cold, is then added, the required quantity having been previously determined as in the case of the soda. It is then agitated for five minutes. After allowing five minutes for quiescence, it is tested for excess or deficiency of lime-water, and corrected if necessary. After final agitation it is allowed to settle, which it will do in from half an hour to one hour. When settled it is taken off by means of a floating pipe from the top.

This process has several advantages over any of those above enumerated. By means of mixing with the air compressor, large quantities of air are forced into the water, thus aërating it and producing the following effects:

1. The stirring of the water causes the brush-like flakes of the carbonate of lime, changed from in solution to in suspension, to combine mechanically, and, agglomerating with the other impurities in the water, carries them down.

2. The oxygen in the supplied air combines chemically with the organic impurities in solution in the water, and by combustion forms carbonic-acid gas, and the detritus of the organisms in suspension, which combines with the other impurities and is also carried down.

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3. The added air, by aërating, improves the water for drinking purposes, by removing the flatness due to the removal of the carbonic acid; and in the case of the water being used for making steam, it not only increases its capacity for making steam, but increases the efficiency of the steam.

This process was tried at the Peabody station of A. T. & S. F. Railroad, where the amount of salts of lime and magnesia was 54 grains per gallon. For efficient precipitation, the required degree of temperature was found to be 140°. At 160°, as per certificate of the railroad chemist, a tank containing 2,000 gallons settled perfectly in from twenty to twenty-five minutes, and removed all but $3\frac{8}{10}$ grains per gallon. Objections being made to the expense of heating the water, and as time at that station was not so much of an object, experiments were made with a preparation of iron added to the water, after the lime. This, by mechanical combination with the suspended flakes of the carbonate of lime, caused them to aggregate together, and by increasing their specific gravity hastened this precipitation. This was so far successful that at a temperature of 80° F. the complete precipitation of the suspended matter was effected in one hour.

The water used for the engine at the Reform School, North Topeka, Kansas, was examined for earth salts. The incrustation in the boiler, while considerable, was of minor importance compared with the foaming of the water in the boiler. Tested with a reagent, it was found to be decidedly alkaline. Concentrated by evaporation, and tested, it gave evidence of the presence of soda. Treated to lime-water at 100° temperature, the impurities rose to the surface instead of being precipitated. Treated by lime, and agitation at normal temperature, the suspended matter precipitated at once. To purify from organic matter, of which evidence of its presence in excess had been found, the water was treated by ferrous hydrate. This being put into the water, it was thoroughly agitated, and the same effect was produced as with the iron purification at Antwerp. By reason, however, of the more finely divided state of the iron and of its being ferrous, and also of the more thorough mixture, the action was more prompt. Lime-water was then added, and the mixing by air agitation was repeated. The iron, now reduced to ferric hydrate, combined mechanically with the flakes of the carbonates and the mud in suspension, and precipitated them at once.

The well at the Reform School was then treated, as an analysis made by members of the City Board of Health showed an excess of organic matter in the well-water, which excess was by them believed to account for several cases of typhoid fever which had occurred among the inmates of that institution. One portion of the water was treated to lime-water, another portion to ferrous hydrate and lime-water, both at normal temperature. An analysis of the above-treated waters and of the normal water was made by Mr. Church, chemist of the Atchison, Topeka & Santa Fé Railroad Company, who found $1\frac{27}{100}$ grains of organic matter per United States gallon in the normal water, and but a trace in each of the above-treated waters. The

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above process, combined with the writer's apparatus for purifying water, combining as it does the best results of the Antwerp improvement of Bishof's spongy-iron process, the Leeds experiments for the removal of organic matter in water by means of atmospheric air oxygenating it, the principle of Frankland's experiments on the effect of agitating with solid particles and precipitation in the destruction of living organisms in water, and the writer's improvement of the Clark process by removing mud, detritus, &c., in suspension, as well as latent organic and inorganic matter "in solution," by first changing it to "in suspension," and then removing it by subsidence instead of by filtration, the passing of the filtering material through the water, and carrying down with it all suspended matter in the water, instead of passing the water through the filter, and thus charging the filter with the accumulated impurities in the water, gives promise of realizing to the full Dr. Lewin's "ideal filter," and that too without liability to deterioration.

IV. *Distillation.* The ordinary process of distillation is well understood. When water is boiled, the gaseous substances are first expelled, then the water is evaporated, leaving the solids. This mode of purifying water is expensive, as each pound of water evaporated requires one-tenth of a pound of coal, for which reason it is seldom used on a large scale except on board of vessels.

Prof. Spencer Baird, Secretary of the Smithsonian Institution, has recently written an open letter regarding the beneficial effect of boiling in increasing the potability of water. The water should be boiled actively for half an hour, in order to effectively destroy the germs of disease. This process will not diminish the amounts of inorganic impurities in the form of carbonates, but will only intensify, by concentration, inorganic poisons.

TOPEKA'S ICE SUPPLY.

BY DR. J. C. M'CLINTOCK.
President of the Topeka Board of Health.

At a former meeting of your Board I had the honor to present a very brief and incomplete report of the water supply in the city of Topeka, in which I attempted to show the almost universal impure condition, and the danger of further use, by the citizens, of the water from their wells; also, that the water furnished by the Water Supply Company was good, and had caused no cases of sickness; that the well from which their water was drawn was situated on an island opposite the upper portion of the city, in the Kansas river.

I now wish to show you that the water above, about and below this island is, paradoxical as it may seem, very impure, and from this water is drawn

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a large portion of the supply of ice with which the city is furnished. How the well of this company, surrounded by impure water, can contain and continue to furnish water which is sanitarily pure, is a question I must leave to our sanitary engineer; being content with the explanation which has been offered, that the water in this well begins to percolate into and through the sandy bed of the river at a point from three to five miles above the city, consequently above the source of any serious contamination; the bottom of the new well being seven feet below the bed of the river, and having heavy walls of limestone, cemented and laid in hydraulic cement, thus excluding all water except that found several feet below the bed of the river.

How the water of the Kansas river is contaminated will now be my endeavor to show you.

To begin with the river, we know that it rises in the eastern part of Colorado, and on our western plains, and that in its ownward course before reaching the city of Topeka it takes up and carries a good load of inorganic impurities, rendering the water hard. The organic impurities received are soon oxydized in its rapid current and rendered harmless, and would furnish the city with pure ice did it not receive a large and constantly increasing quantity of sewage in and near our city limits. The first seriously large quantity is received about two miles above our city, from the State Insane Asylum; next, the waste from the city is received by the river through sewers and natural drains. It has been no unusual sight to find workmen cutting ice within twenty-five feet of the mouth of a sewer; it is needless to say that the offering for sale of such ice is nothing short of criminal.

The only other stream from which ice is drawn in the vicinity of Topeka, is from Soldier creek, a small sluggish stream running north of our city, and contaminated by drainage from slaughter houses and from the State Reform School, an institution which has had two consecutive autumnal endemics of fever, of a severe form. The sewage from this institution is probably calculated to impart a highly infective or unsanitary quality to the water of this stream, which has so little flow that its movement is imperceptible.

I will further state the fact that no ice is cut above all these sources of contamination, and that it will be a marvel if the ice from such water can be used without dire results to the health of those by whom it is used. The sacred singer of Israel once cried in a burst of poetic imagery, "Moab is my wash-pot!" Topeka might echo with the refrain, "The Kaw is my wash-pot, my ice-pond, and ———."

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FIRST ANNUAL MEETING NATIONAL CONFERENCE STATE BOARDS OF HEALTH.

[The following will be of special interest to every person interested in the promotion of sanitary reform:]

In response to the notification of the Secretary, made in accordance with the action at the Washington meeting of organization, the first annual meeting of the National Conference of State Boards of Health was held in the city of St. Louis, beginning on Monday, October 13, 1884, the Hon. Erastus Brooks, of New York, in the chair, and the following representatives being present:

J. A. Dibrell, jr., Arkansas State Board of Health.
C. A. Lindsley, Connecticut State Board of Health.
John H. Rauch, Illinois State Board of Health.
W. S. Robertson, Iowa State Board of Health.
Pinckney Thompson, R. W. Dunlap, J. McReynolds, and J. N. McCormack (Secretary of the Conference), Kentucky State Board of Health.
Joseph Holt, S. S. Herrick, and L. F. Salomon, Louisiana State Board of Health.
C. A. Chancellor, Maryland State Board of Health.
J. A. Steuart, Health Officer, Baltimore, Md.
H. P. Walcott, and S. W. Abbott, Massachusetts State Board of Health.
S. H. Durgin, Boston, Mass., Board of Health.
Henry B. Baker, Michigan State Board of Health.
D. W. Hand, W. H. Leonard, and C. N. Hewitt, Minnesota State Board of Health.
E. H. Gregory, J. C. Hearne, H. F. Hereford, Albert Merrill, G. F. Bartlett, G. M. Cox, and W. B. Conery, Missouri State Board of Health.
Irving A. Watson, and J. P. Conn, New Hampshire State Board of Health.
Ezra M. Hunt, New Jersey State Board of Health.
Erastus Brooks, New York State Board of Health, (Chairman of the Conference.)
Charles H. Fisher, Rhode Island State Board of Health.
T. Grange Simons, South Carolina State Board of Health.
H. B. Horlbeck, Health Officer, Charleston, S. C.
G. B. Thornton, and J. Berrien Lindsley, Tennessee State Board of Health.
David P. Hadden, Memphis, Tenn., Board of Health.
R. M. Swearingen, Health Officer, Texas.
James E. Reeves, West Virginia State Board of Health.
S. C. Johnson, J. T. Reeve, and B. O. Reynolds, Wisconsin State Board of Health.

On motion of Dr. Rauch (Illinois), the representative accredited to the Conference by the Dominion of Canada, and the representative of the Provincial Board of Health of Ontario, were elected members of the Conference, and the roll of those in attendance was then completed by adding the names of Charles W. Covernton, Dominion of Canada, and P. H. Bryce, Provincial Board of Health, Ontario.

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The chairman, in opening the meeting, congratulated the members on the large attendance, which he thought indicated the public interest in the health question. It would be idle for him to repeat anything which had been said in the past in regard to the importance of the work of State boards of health. He was glad to know that nearly every State in the Union had established its board, and the few States and Territories which were at present without boards are considering the advisability of establishing them. In the State of New York there are now local health organizations in some 900 of the 1,000 towns in the State. There are also similar organizations in nearly all the 240 villages in the State, and in each of the 24 large cities.

And this has been accomplished by persuasion, rather than by force, although the State gave them unlimited power to establish organizations in every town and village. He foresaw a wide and varied field of usefulness for such an organization as the National Conference, and expressed an abiding confidence that its deliberations and action would result in increased efficiency, coöperation of effort, and uniformity in the best methods of practical work among its individual members, each in his own sphere and territory, but all laboring to one common end.

After the reading and approval of the minutes of the Washington meeting, Dr. Hewitt (Minnesota) presented a plan proposed by the Minnesota Board for completing the organization of the Conference, and the main points of which are as follows: The establishment of a body to be known as the "Council of the State Boards of Health of the United States," the officers to consist of a chairman, corresponding secretary, recording secretary, a treasurer, and an executive committee—the latter to consist of one member from each State Board; the objects of the organization to be the cultivation of a closer acquaintance between officers and members, to facilitate discussion of sanitary work, and to give better opportunities for comparing and discussing methods.

Dr. Rauch (Illinois) moved that the plan be referred to a committee of five, of which the Chair and Secretary be *ex officio* members.

Dr. Baker (Michigan) offered an amendment, that the report of the committee be received at the next annual meeting.

The motion as amended was then carried; and the chairman announced the committee, as follows: Rauch, of Illinois; Hunt, of New Jersey; Baker, of Michigan; Brooks, of New York; and McCormack, of Kentucky.

A communication from the Executive Committee of the American Public Health Association, inviting the Conference to use the Wednesday afternoon session of that body for the presentation and discussion of papers and reports from the State boards, was read by the chairman, and on motion the invitation was accepted.

In this connection the question arose, and was discussed at some length, as to whether papers prepared for the Conference should be reserved for the American Public Health Association.

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Dr. Simons (South Carolina) said the subject for which the Conference had been called together was to discuss the practical work to be done to prepare against the advent of cholera, or to restrict its progress if it does invade our shores. The Conference must decide what is best to do, and he was sent to the meeting to take part in this work, and to report, on his return, as to the measures proposed or adopted. The American Public Health Association cannot deal with this practical work; it is an educational body, and has accomplished much good. But it has no authority, and cannot act nor enforce action. This can be done by executive State boards, who are on the spot, and are acquainted with the local conditions and the necessities that require sanitary work and legislation.

During the discussion, which was participated in by Drs. Rauch (Ill.), Salomon (La.), Dibrell (Ark.), and Mr. Brooks (N. Y.), it was made clear that the scope and province of the Conference differed widely from those of the Association; the function of the Conference being to bring together men from all parts of the Union who were actively engaged in the practical work of protecting health and fighting disease through certain well-defined agencies, namely, the enforcement of sanitary laws and ordinances, State and municipal—men who were vested with authority and charged with responsibility by law. How can this responsibility be best discharged, and this authority be most efficiently and beneficently exercised? how can remedy for defects in existing laws be secured, and provision made for co-operation with each other and for concert of action in efforts to promote health, and so to make labor and industry and commerce and all other material interests more secure and prosperous?—these are the questions which should occupy the time and attention of this Conference. At the present time the work demanding earnest consideration from every sanitary official is the prevention of Asiatic cholera in this country; and it was to this work that the members should now devote themselves.

At the close of the discussion, by general request of the Conference, the following address, prepared for special consideration at this meeting, was delivered by its author:

PRACTICAL RECOMMENDATIONS FOR THE EXCLUSION AND PREVENTION OF ASIATIC CHOLERA IN NORTH AMERICA.

BY JOHN H. RAUCH, M. D.,
Secretary of the Illinois Board of Health.

MR. CHAIRMAN: A grave responsibility rests upon those charged with the protection of the public health at the present time. For the past six years—ever since the memorable fever summer of 1878—the country has been free from any serious and wide-spread epidemic disease. Small-pox, which prevailed from 1880 to 1883, has been successfully combatted, and its ravages confined to proportions which are insignificant when compared with many other epidemics. Hundreds of thousands of unprotected immigrants were landed on our shores during those years; but the Immigrant-Inspection Service, inaugurated in the spring of '82, thenceforth rendered them com-

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paratively harmless, by securing an improvement in their sanitary status, through the effect of the service upon the work of steamship surgeons during the voyage, and upon the methods at quarantine on arrival; as well as by its own sanitary surveillance of the immigrants from the port of arrival to the point of ultimate destination or distribution in the great interior—such surveillance consisting of repeated inspections, vaccination of the unprotected, systematic observation of suspicious sickness, prompt isolation of discovered small-pox or other contagious disease, and the enforcement of measures necessary to prevent its further spread. Among our own people outbreaks of the disease were promptly suppressed wherever sanitary authority had control, and well-defined methods of dealing with the contagion were enforced. On the other hand, while we have fought small-pox and conquered it, we have been spared from any serious conflict with yellow fever. Nor have other diseases prevailed to an unusual extent, as they so often do in the absence of an epidemic. On the contrary, the average annual death-rate has been low, and during the past year remarkably so.

This very fact should be, in itself, a warning to the sanitarian. It means a survival of a large number of persons who would have been carried off had the non-epidemic diseases maintained their usual severity. It means the accumulation of susceptible material ready for the prey of epidemic contagion, whenever such contagion shall be introduced under conditions favoring its propagation and spread. It is one of the most important factors in determining the extent and severity of the next epidemic, whatever that may be and whenever it may visit us.

But for a period of six years sanitary effort and sanitary authority have had no unusual demand made upon them, or at least no demand which the public recognizes as unusual. And during these six years the interest in sanitary matters, which was aroused by the epidemic of 1878, and which, among other causes, led to the formation of many of the present State boards of health, and to the creation of the National Board, has gradually diminished as the memory of the epidemic faded away, or was displaced by other and newer topics and occurrences.

One of the chief reasons why sanitary work fails to receive continuous and adequate consideration and support from the public and from the legislator is, that in its very essence it is a work of prevention; and just in proportion to its own success and thoroughness, does it destroy the obvious and palpable reasons for its continuance. When an epidemic actually exists, and industry and commerce are paralyzed in its presence, and the death-roll swells from day to day, there is then no question in the public mind about the desirability of sanitation; no hesitation as to making appropriations for its support, or enacting legislation to increase its efficiency. But Rabelais told us, nearly four hundred years ago, what always happens whenever the devil gets well. And Congress adjourned its last session, not only without doing anything additional for the protection of the public health, but after substantially annulling and rendering inoperative the only national legislation of any real value which we possessed.

However, there is a revival of public interest in these matters within the past few months, due to the spread of Asiatic cholera in southern Europe; and it is our present duty, as sanitary officials, to utilize and direct that interest to the securing of adequate legislation and intelligent action for the prevention of the introduction of the pestilence to our shores, and its limitation, should it unfortunately effect an entrance. Much has already been done in the latter direction, by the action of State and local authorities in

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pushing the sanitary education of the people through circulars, memoranda and other modes of appeal. Since the 2d of July last, such circulars from sixteen States and from the Dominion of Canada have already come under my notice. In many instances, sanitary inspections of municipalities, public institutions, jails, alms-houses, and kindred establishments, have been ordered and carried out, with the view of securing the abatement of nuisances and remedying defects in the sanitary conditions thence disclosed. An amount of sanitary work has been thus already accomplished, which, aside from any consideration of cholera, will be of great value in reducing sickness and mortality from the entire list of diseases which are caused or favored by filth or other unsanitary conditions. A recent number of the New York *Medical Record* says: "There is no doubt that the extra cleanliness produced by the cholera scare will effect a saving of life from other filth diseases far in excess of the mortality from the cholera itself, unless, indeed, it should spread beyond all expectation."

This work should be continued, and the measures which have already been inaugurated, looking to improvement in general and local sanitation, should be pushed with unabated vigor during the favorable weather we may yet have; and they should be resumed with redoubled energy whenever climatic conditions permit. It is not necessary to go into details as to this work; we are familiar with its requirements and its necessity. It is a work of continuous interest and importance, whether cholera should come or not.

With theories and speculation as to the causation of cholera, or as to its mode of diffusion and epidemic spread in the countries of the Old World, this Conference is not specially concerned. It is enough for us to know, as the basis of our action, and the foundation for practical recommendations and advice, that the disease is not indigenous to this continent; that it is an exotic, and has never yet visited us except by importation, and that only after ample warning.

It may be entirely true that, if all our food-supplies were wholesome, and our water-supplies not only unpolluted but unpollutable; if sewage and refuse disposal were prompt and complete; if our cities, towns and villages were all models of sanitary perfection, and their inhabitants free from predisposition or susceptibility, acquired or inherited — in short, that if there were no ignorance, nor poverty, nor filth, nor infirmity in the land, we might dispense with precautions against the introduction of disease.

But the sanitary millennium is not yet, and we are hardly likely to witness its advent before next spring or summer, no matter how earnestly we may labor for it. So, for the present at least, as a practical sanitarian accustomed to deal with conditions as they actually exist, I think the wise thing to do in respect of cholera is to resist the first beginnings — *obsta principiis.*

It is no doubt well to be prepared to expel the midnight burglar from one's dwelling; it is better to keep him out by locks and bolts and watchful patrols. If people must live among combustible material, it is a prudent thing to forbid smoking on the premises, and to be careful about matches and other incendiary agencies, the contagion or contact of which may kindle a conflagration.

Until we can very materially change the conditions which cause considerably over one-half the annual mortality, it is our simple duty to adopt whatever measures promise a fair degree of success in excluding the foreign epidemics. Such typical filth diseases as typhoid fever and diphtheria carry off sixty-odd thousand people every year; and during the census year the

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ten principal groups of more or less preventable diseases caused over 470,000 out of the total 756,000 deaths in the United States.

With such a showing it is simply nonsense to talk about relying upon sanitary measures alone to combat a disease like cholera. Let us push sanitation by every means in our power, and to the fullest extent. Not, however, with any hope that we can effect such a sanitary revolution in a few months as would prevent cholera, if introduced, from spreading as an epidemic in many localities, which, in the nature of things, cannot be reformed in many months. But rather in the knowledge that every sanitary reform tells permanently and continuously on the whole body of preventable diseases; and that to the extent and measure of such reforms are the conditions made more favorable for the exclusion and prevention of all epidemics.

That cholera *will* come, it is our duty to assume. Mindful of the history of every previous cholera epidemic, we must accept as beyond a doubt—if experience is worth anything—the certainty that the disease will be brought to our shores. It always has come, sooner or later, whenever, since 1832, the contagion has obtained such a foothold in Europe as it now has.

Sooner or later, and we cannot tell how soon. Cholera was brought to Marseilles in the early part of June, 1865, from Bombay via Mecca, by pilgrim-steamers conveying Algerine pilgrims returning home from the feast of sacrifices at the "holy city," and spread so rapidly that, during the month of October, it caused between four and five thousand deaths in Paris. On the 12th of that month the steamer Atalanta left Havre with over 600 cabin and steerage passengers, all of whom had been in Paris, and on her arrival in New York bay she had had 102 cases of cholera and 23 deaths. So that the disease was brought from its endemic home in India, by way of Mecca, Marseilles, Paris and Havre, to New York in less than nine months.

It is probable that we do not know how widely spread the disease is upon the continent, nor what places and ports are infected. The London *Lancet* recently stated that it has transpired that there were deaths from Asiatic cholera in Marseilles during 1883, and Dr. Albert Drysdale, health officer at Mentone, writes to that journal corroborating the statement from his own personal observation, having been taken to see a case in October, 1883, by a medical friend. Attendants, nurses and all others cognizant of the facts were sworn to secresy. Still more recently, French naval officers have frankly stated that cholera existed on their vessels at Toulon long before the fact was made known last spring. In 1873 the existence of cholera was concealed in Austria on account of the great Vienna exposition, and although the disease is now known to have been spreading from place to place from early in the spring, it was not until midsummer that any warning was sounded of an epidemic which caused 240,000 deaths in the Austrian dominions alone.

I repeat that we may not know how widely spread the disease now is on the European continent, and that we do not know how soon its arrival on our own shores may be announced. It is not probable, however, that it will reach us before next spring, and we may pretty safely count on some months yet in which to push our preparations to meet it and to resist its advance. Even though a few cases should now be received, the season is so far advanced that they probably would cause no epidemic spread.

I began my remarks with the statement that a grave responsibility rests upon the sanitarian at the present juncture; but there is an equally weighty obligation resting upon the public and upon our legislators. I undertake to say, as a sanitary official of nearly twenty-five years' experience in the prac-

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tical administration of sanitary matters in city, state and nation, and after more than a third of a century of study and observation of the disease, beginning in 1850—that Asiatic cholera may be practically excluded from the United States; that it is preëminently a quarantinable disease; that, with a judicious employment of agencies which have already been tested, Asiatic cholera may be quite as successfully dealt with in this country as small-pox, and probably more so than yellow fever.

Whether cholera shall be excluded—whether the means and agencies necessary to deal with it shall be supplied—are questions which the public must answer through their representatives in Congress, in State Legislatures, and in their municipal councils; and I propose, in the remaining portion of these remarks, to endeavor to point out what means and agencies are necessary to the end in view; premising that, in their consideration, it should be remembered that sanitary science is comparatively modern; that the sanitary organizations of the present day had no existence in the days of the great epidemic visitations of cholera in this country; that within the past few years there has been a rapid and wide-spread diffusion of sanitary knowledge among the people; and that, even as late as the last cholera epidemic in the United States (that of 1873), no organized effort was made to prevent the importation of the disease, and practically little or nothing done to prevent its extension; certainly, no such measures have ever been employed, either to prevent its introduction or to limit its spread, as we have recently successfully employed against small-pox and yellow fever.

Asiatic cholera—so far as this country is concerned—is preëminently a quarantinable disease. Unlike the virus of small-pox, unlike the poison of yellow fever, the morbific potency of the cause of Asiatic cholera—whatever that cause may be—is sharply limited as to duration. Failing to find suitable conditions for its growth and reproduction, it *dies out.* No single case, no single shipload of cases, ever succeeded in establishing an epidemic in this country. I know this is contrary to the received opinion and popular belief; but I ask you to follow me in a brief résumé of the facts concerning each epidemic, beginning with 1832. That epidemic is attributed to the ship Carrick, which arrived at the Grosse Isle quarantine station in the St. Lawrence river on the 3d day of June, 1832. But six days before that, the ship Elizabeth had arrived with two hundred immigrants on board, and having had twenty cholera deaths during the voyage. Fourteen days before the Elizabeth, the Robert had arrived with ten cholera deaths; and sixteen days before the Robert—that is, on the 28th of April, thirty-six days before the arrival of the Carrick—the ship Constantia arrived, having had twenty-nine cholera deaths during the voyage. These are all known to have been cholera-infected vessels, and their hundreds of passengers were known to be cholera carriers; but these passengers are only a small fraction of the thirty thousand immigrants who arrived in the St. Lawrence during the spring and early summer of 1832, from the same infected localities, and sailing from the same infected ports as the passengers of the Constantia, the Robert, the Elizabeth, and the Carrick. And yet they failed to develop a single case in Canada or elsewhere until the 8th day of June. The introduction of the disease into New York is attributed to Canada; but the same class of immigrants from the same localities in Europe were arriving in New York, during the spring of '32, as those in the St. Lawrence. And yet no case of the disease occurred in the city or vicinity until June 13th.

In 1848, the noted cases of the New York and the Swanton occurred—

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the former carrying cholera into New York, the latter into New Orleans; and to them is attributed the epidemic which, in the two succeeding years, spread from the Atlantic to the Pacific, and from Canada to the Gulf. But the importation by the New York, though causing fifty deaths at quarantine, resulted in only two cases in New York city, and it was not for months afterward—not until the 11th day of May, 1849, and after the arrival of several other ships with cholera on board—that the first case appeared in the city, and the disease began to spread from that point. On the other hand, immigration from cholera-infected districts of Europe into New Orleans had been continuous for months before the arrival of the Swanton—the two vessels immediately preceding her, viz., the Gutenburg and the Callao, having lost 25 passengers from cholera.

From this time until the close of what is generally known as the epidemic of 1854, but which was really only a continuation of the epidemic of 1848–9, there were continual importations of cholera-carriers, either in the persons of those who had been exposed, or in cholera-infected articles; in November, 1853, for example, no less than 28 vessels, on which 1,141 persons had died of cholera, arrived at the port of New York alone.

The case of the Atalanta, in 1865, has already been noted, but it should be further observed that there were three other arrivals at New York from Havre soon after, and on the last two of these there were deaths from cholera during the voyage: but the disease got no nearer the city than Ward's Island, and by the 20th of December had entirely ceased. In 1866, cholera was carried into Halifax by the steamer England, which vessel afterward proceeded to New York, where, on the 20th of April, she landed 891 passengers and 116 officers and men, having lost 316 by cholera. There were eight cases and five deaths among those who had to do with the vessel at Halifax, but no other extension of the disease, and none in New York. Two days prior to the arrival of the England, the Virginia had arrived at New York quarantine, having had 116 deaths on the voyage; and before the first death of the epidemic of 1866 had occurred, namely, May 2d, there had been nearly 3,000 arrivals in New York of individuals "who had been directly exposed to the infection of cholera at Liverpool, on shipboard and at quarantine." Notwithstanding this, so slowly does cholera spread, except under favorable conditions, that there had been only 21 deaths from the disease up to July 8th; and it was not until the first week in July that the disease appeared in Brooklyn, although there were frequent arrivals of cholera vessels during all this time.

The epidemic of 1873 was preceded—*fourteen months before the first case of the epidemic occurred*—by the arrival of the Franklyn at Halifax, November 6th, 1871, in distress, having lost 28 of her steerage passengers by cholera. Five cases, with three deaths, resulted from her on shore, but the disease did not spread, either in Halifax or vicinity. The vessel proceeded to New York, where she arrived November 12th, 1871, having lost 11 more of her passengers, and having 72 cases then on board. But no epidemic followed. During 1872 there were numerous arrivals from cholera-infected ports, and the disease appeared on the island of Cuba and in Jamaica in the autumn of that year. During December, 1872, and January, 1873, there arrived at New Orleans a total of nearly two thousand immigrants from cholera-infected districts of Europe. And yet it was not until the 9th day of February, 1873, that the initial case of this epidemic occurred in the city of New Orleans.

No single case of cholera, no one shipload of cases, has ever yet sufficed to

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establish an epidemic of Asiatic cholera on this continent. It has only been after repeated importations in the persons of thousands of immigrants and in their infected baggage and household goods, that the contagion has effected a lodgment, and has reproduced itself and multiplied into an active epidemic agency.

Hence my first proposition that, for this country, the disease is essentially and preëminently a quarantinable disease, and may be practically excluded. If it were true of the cholera poison, as it is of the small-pox contagion, that favorable conditions for its spread exist wherever a susceptible individual is found, without reference to the sanitary surroundings, we should have no such history as I have just recited—a history of repeated importations extending over months and months, before it succeeded in establishing itself.

It will not do, however, to construe this tardy establishment of the contagion into an excuse for delaying measures of preparation—neither those for its exclusion, nor those for its limitation and suppression, should we fail to exclude it. Cholera is a capricious disease, and the history of its various pandemic extensions throughout the Old World affords instances of a single introduction sufficing to inaugurate an epidemic. Fortunately, the conditions favorable to such a prompt epidemic spread do not obtain with us, except in a few localities. Populations are not so dense, nor are dwellings so saturated with crowd-poison, nor is the soil so thoroughly polluted by long occupancy. Where these evils exist, they should be remedied forthwith to as great an extent as practicable, in order that, among other good results, the conditions favorable for the growth and multiplication of the cholera-poison may be destroyed or limited.

It is charged that quarantine is powerless to prevent the extension of epidemic diseases; that, in the language of John Simon, "a quarantine which is ineffective is a mere irrational derangement of commerce;" and that to be effective, it must be of such a nature as to absolutely prevent all intercourse with the infected country. This may be true of Great Britain, owing to her geographical position, to her extensive commerce and its exigencies, to her comparative dependence on other countries for her food supply, and to other conditions which do not obtain with us. It may also be true of Europe generally. There, a narrow strait or sea, a river, a mountain chain, or merely a territorial boundary line, with its custom houses and passport system, defines the limits to be guarded, and forms the only physical barrier between the quarantiner and the quarantined. Here, the whole width of the Atlantic intervenes between us and the infected country. There, cordons and quarantines mean privation, misery and suffering, and ultimately, starvation. Here, the nation is self-supporting, and could exist unaffected in almost all her material interests. There, it may be true, as alleged, that a quarantine of exclusion is impossible of execution, and that the attempt to maintain it does more harm than good, in leading to numberless contraband practices by which the disease may be introduced in unsuspected ways.

None of this is true when applied to the exclusion of Asiatic cholera from this country; while to accept the statements unquestioned would cause vigilance to be relaxed, would invite contagion to our shores unimpeded, and would finally throw upon individual communities the burden and the responsibility of fighting the disease at an immense disadvantage—that is, of fighting it at home and from many quarters, instead of on the outer lines and from only one direction.

With the necessary agencies of an effective quarantine provided in due

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season, it would not require any very great degree of courage to promise the practical exclusion of the disease.

These necessary agencies may be thus stated, in their natural order of sequence:

First—Timely and trustworthy information of the existence of the disease in countries and at ports having commercial relations with our own, including telegraphic advices of the departure of vessels from such ports for ports in this country. Section 1752 of the Revised Statutes of the United States gives the President authority to use all diplomatic and consular officers for "the communication of information . . . conducive to the public interests;" and instructions have already been issued under this authority.

To properly utilize this information—in fact, in order to fully secure the information—there needs to be—

Second—A national health organization, representing the natural sanitary divisions of the country; endowed with adequate authority; supplied with means commensurate with the duties imposed upon it; and with the power to call upon any other branch of the public service of the United States for legitimate assistance and coöperation. With some modifications, the present National Board of Health would satisfactorily meet this indication. In my judgment, its membership should be enlarged so as to more perfectly represent the natural sanitary areas, and its members should be familiar not alone with the sanitary features of their respective districts, but equally they should be identified with the commercial business and industrial interests.

Under this national health organization there should be extended and perfected—

Third—The system of refuge stations projected by the National Board of Health. With two or three exceptions, no port in the United States has adequate facilities for the proper administration of quarantine. Such a system as was inaugurated by the National Board of Health, and which is the only quarantine contemplated in these remarks, involves the removal of an infected or suspected vessel out of the track of commerce; the segregation of her sick from the well; the proper care and shelter of both these classes; the necessary disinfection of infected cargo, and the purification of the vessel; and the release of vessel, cargo and persons, so soon as they have been rendered safe and free from the danger of communicating the disease.

This is very differerent from a mere quarantine of detention. It is the American quarantine of sanitation, a common-sense quarantine, which aims to prevent the introduction and extension of contagion, not by merely arresting it at a given point, and there leaving sick and well at its mercy, until the susceptible material having become exhausted, no more cases of the given disease occur, but by removing the susceptible at once from its influence, and then destroying it, and the conditions necessary for its existence, by scientific methods of disinfection and purification.

To do this, however, requires a quarantine plant, and facilities far beyond the means of any but the largest ports, supported either by abundant quarantine fees, or by adequate appropriations from the State or municipality. But cholera may obtain access at a small port as well as a large one, and hence the necessity for the refuge stations above indicated.

Under the system here outlined, the departure of a vessel from a cholera-infected port would be at once cabled to the national health officer; the authority at the port of destination would be duly notified; pilots for such port would be ordered to take the vessel to the nearest refuge station; and at such station, under the charge of a national officer, and at the expense of

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the National Government, she would be so treated as to make it impossible that she could land cholera contagion in our midst.

So much for the measures which should be adopted for the exclusion of the disease — measures which have already been practically tested sufficiently to demonstrate their feasibility and value. But before dismissing this branch of the subject it will be well to consider the possibility that it may be necessary to absolutely prohibit immigration, for a time at least, from infected countries. Every one of our cholera epidemics has been directly and unmistakably traceable to the arrival of immigrants infected in person or in baggage and household goods. It was the crowded troop-ship and transport which brought the contagion into France from China and Egypt. It is the crowded pilgrim steamer and passenger vessel which carries it from Bombay and Calcutta into Europe and elsewhere, as already instanced. It is the steerage of the immigrant vessel, with its crowd-poison and other conditions favorable to the development of a specific contagion, which we have to fear. This contingency is one of the most important against which national legislation should be provided next winter.

I have said that I believe Asiatic cholera may be as successfully dealt with in this country as small-pox — notwithstanding that we have no such demonstrated prophylactic for the former, as vaccination is for the latter disease; that it may, probably, be more successfully dealt with than yellow fever — notwithstanding that this is limited by climate and temperature, while cholera is independent of the one and only measurably affected by the other. I believe this to be the case as the result of my own official experience. In the last two epidemics of cholera, the disease was controlled wherever it appeared in the localities under my supervision, by the adoption and enforcement of the simplest measures. Surface wells were fouled with carbolic acid, so that their use for drinking and culinary purposes was necessarily abandoned, and a pure water supply was provided instead. Every house where a case of cholera appeared, was promptly taken charge of by the sanitary authorities; the patient was isolated; discharges were thoroughly disinfected and buried; all other sources of infection were carefully looked after, and the premises generally were put in the best attainable sanitary condition, and with marked results upon the extension and progress of the disease. Every community for itself may readily provide a similar mode of dealing with a cholera outbreak, should the disease unfortunately be introduced.

But something more than this is needed in order to perfect the sanitary defense of the whole country. For this we must have coöperation and concert of action. We must devise a plan whereby the limited and individual powers of communities and States may supplement each other, and act harmoniously and efficiently for the common welfare. In the exercise of its police powers, upon which all its sanitary laws and ordinances are founded, the municipality is confined within its own limits, or for certain purposes to a short distance beyond. The power of the State is in like manner limited by its own boundary lines.

In the absence of a national health organization, with power to act without reference to State lines and with resources to meet every emergency, the best we can now do is to form an organization of all those clothed with sanitary power and authority, both State and municipal — an organization which shall give effect to the principle that we are each our brother's keeper in whatever pertains to the prevention of the introduction and spread of epidemic contagion. Such an organization as the Sanitary Council of the Mississippi

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Valley, supervising—and if need be maintaining—a system of sanitary surveillance similar to the River and Rail Inspection Service in the valley, and the Immigrant-Inspection Service of the recent small-pox epidemic, will be of great value in a twofold manner.

It will enable State and municipal authorities to aid each other and to make their rules and regulations substantially uniform, and thereby to secure the coöperation and assistance of transportation companies and other commercial interests, whose business success depends so largely on freedom from unnecessary interruption or conflicting and changing restrictions. It will be of positive sanitary value in the moral pressure exerted on the individual agents of travel and traffic.

Here in the valley a great improvement in the sanitary conditions of steamboats, barges and river craft, and, to a minor degree, in the care of railway cars, depots and out-buildings, followed the knowledge that the detention for inspection depended upon the experience of the inspector with regard to the particular boat or line. In the same way the conditions of immigrant travel were sensibly improved by the Immigrant-Inspection Service, not only on our railroads, but on the ocean steamers themselves. Its effects were also manifested in the administration of the seaboard quarantines, to which the service was a direct help in securing a prompter and more general compliance with the quarantine requirements of the different ports.

This latter point is one of great importance to the interior. Illinois, for example, is as much interested in maritime quarantines as are communities bordering upon the Atlantic and Gulf of Mexico. During my own official experience the State has repeatedly suffered from the laches and inefficiency of their administration. Her sanitary interests are protected or endangered through them along the whole line from the mouth of the St. Lawrence to the mouth of the Mississippi, and even to the Rio Grande. Means of communication and intercourse are now so multiplied that time and space—in respect to contagious diseases—are practically annihilated; and methods which might have sufficed for the protection of the interior twenty-five years ago, would be to a great extent valueless to-day.

In 1873, for example, there were outbreaks of epidemic cholera at Carthage, Ohio, in Kandiyohi county, Minnesota, and at Yankton, Dakota, caused by cholera poison packed up in the household effects of emigrants in Holland, Sweden and Russia, respectively; these emigrants sailed from healthy ports, in healthy vessels, and were subjected to the usual sanitary requirements of the period. They passed through New York and all intermediate territory without injury to the public health. But when their infected goods were unpacked in the interior of the continent they liberated the poison which gave rise to the local outbreaks.

To guard against a possible recurrence of such importations—which have been often paralleled in my experience with regard to small-pox among immigrants, and through which importations, both of cholera and small-pox, the interior is affected while the port of arrival escapes—no ordinary system of quarantine, controlled by a State or municipality alone, will suffice. Prompt and trustworthy information, such as the General Government only can obtain, concerning the sanitary history of all emigrants during the existence of cholera in Europe, is obviously necessary to this end.

Sooner or later the National Government will be compelled not only to assume supervision of exterior quarantines, but to provide for a permanent system of coöperation with State and local governments in the administration of inter-State sanitation; in order, on the one hand, to prevent the introduction of exotic epidemic diseases, and, on the other, to prevent their spread

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from State to State along the great intra-national highways of travel and commerce. This is a national duty. It is one that the National Government only can adequately discharge, and its expense is, equitably, one which should be defrayed from the national treasury.

Such an organization as I suggested will be one agency for securing the assumption of this duty by the General Government; and the present emergency offers a favorable time for pressing its consideration. Heretofore, legislation in the interest of public health has been obtained, as a rule, at the tail-end of an epidemic. It has too often been in the nature of a locking of the stable-door after the horse was stolen. Let us now see if we cannot reverse the process, and, while there is yet time, induce not only Congress, but States and municipalities, to take the necessary action for securing a better protection of the public health.

Just now this means more than the good to be found in the saving of human life and in avoiding the suffering and misery, the ruined homes and desolated families, which an epidemic always leaves in its track. It means the prevention of panic; it means the prevention of the interruption of trade and commerce; it means the prevention of the loss of millions of dollars, all of which would inevitably result from an epidemic of Asiatic cholera in this country. Already the disease has cost southern Europe not less than a hundred million dollars—six million dollars up to October 1st in trying to prevent its spread in Italy alone, with a loss of four million dollars even in the month of August, before the disease had effected a serious foothold; and now it is announced that the decrease of the national revenues of France has been materially aggravated by the reduction of receipts from railways, caused by the cessation of travel consequent upon the prevalence of the cholera epidemic. And yet Europe is only upon the threshold of this epidemic, if we may judge from the past.

Shall we be warned in time, or shall we wait until the pestilence has landed and obtained a foothold? A single outbreak—possibly a single case—of Asiatic cholera in New York, or Chicago, or St. Louis, or New Orleans, in our present condition, would cost the country millions of dollars, even though no epidemic spread should result.* With a perfectly feasible quarantine system, whose entire cost would not be a tithe of this sum, the chances of that single case may be made exceedingly remote. With an adequate sanitary organization—embracing within its scope the national authority, the State and municipal, each in its respective sphere—not one case, nor one hundred, could establish an epidemic. Such an organization of the sanitary defenses would inspire public confidence and prevent panic in the face of real danger—and panic is one of the worst complications of a cholera epidemic, as fear is one of the most potent predisposing causes of the disease.

No comparison is possible between the most liberal estimate of the cost of the methods of exclusion and suppression here proposed and the cost of an epidemic. The money cost in both cases, may, it is true, be calculated; but who shall place a dollars-and-cents value on the lives which would be sacrificed, and the suffering entailed by an epidemic of Asiatic cholera?

Our duty, our responsibility, and our opportunity, seem to me plain and obvious. So far as pushing general and local sanitation go, I believe we are doing fairly well; and to this extent we are reducing the chances of the spread of cholera, should it effect a landing through defective or wanting quarantine provisions. The next work that lies close to our hands is to

*In 1879 the report of a single case of yellow fever in the South caused a shrinkage in the provision market, in Chicago alone, which amounted to a million of dollars within twenty-four hours.

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inform the public as to the necessity of securing adequate legislation—National, State and municipal.

Congress must be urged to reorganize and rehabilitate the National Board of Health, or to provide an efficient substitute—one clothed with increased power and supplied with ample funds to maintain an effective system of modern sanitary quarantine for the exterior; to maintain an interior sanitary inspection service for the great highways of travel by land and water; and to give judicious coöperation and substantial assistance to States and municipalities in preventing the introduction of epidemic diseases into one State from another, and in preventing their spread within the States themselves.

Congress should give the President the power to issue a proclamation, upon the recommendation of the national health authority, forbidding immigration into the United States from infected districts of other countries, and it should provide some method of international sanitary coöperation between this country and the Dominion of Canada, whose interests are substantially the same as ours in these matters, and whose contiguity makes coöperation of vital importance.

In States which now have no boards of health, or whose boards are not vested with the necessary authority or provided with adequate resources, the people should be awakened to the necessities of the situation. Legislators should be thoroughly informed as to the facts, and urged to provide suitable legislation.

Information on sanitary matters should be widely diffused to this end, and also to the end that, if an epidemic should come, we may not have to encounter the obstacles which ignorance is always ready to put in the way of what it does not understand. Happily, in this country we are not likely to meet with the treatment that the superstitious peasantry of France and Italy have accorded their physicians and health officers. But sanitary education and knowledge cannot be too widely spread.

These are matters which may profitably occupy much of our time and attention for the next two months; and I would suggest that when this meeting of the Conference adjourn, it be to meet again in Washington early in December, for the purpose of conferring with the President, the proper Cabinet officers, and the committees of the Senate and House, as to the legislation which should be asked for at the next session of Congress. To this meeting I think not only should representatives of State boards of health be invited, but also all quarantine officers and the health authorities of the large cities, as well as those of the Dominion of Canada. I would also suggest that quarantine officers, and those who are responsible for the local sanitation of towns, cities and States, should be requested to come prepared to give all necessary information concerning the quarantine and sanitary affairs of their respective ports and localities.

The address of Dr. Rauch was discussed by Drs. Dibrell (Arkansas), Covernton (Canada), Lindsley (Tennessee), and Mr. Brooks (New York).

At the close of the discussion, Surgeon Smart, U. S. A., read the following paper, by special invitation:

QUARANTINE AND SANITARY METHODS FORMULATED BY THE NATIONAL BOARD OF HEALTH *in re* ASIATIC CHOLERA.

BY CHARLES SMART,
Surgeon U. S. A., Member N. B. H.

The National Board of Health based its rules and regulations to prevent the introduction of cholera into the United States, and its spread from one

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State to another, upon the following facts, which science and experience have demonstrated, viz.:

1. Cholera is caused by a specific germ.
2. This germ must reach the bowels in a living state.
3. The germ maintains its vitality and toxic properties under many conditions, the most important being:
(*a*) In the immediate discharges from the bowels of the sick.
(*b*) In the soiled clothing of the sick and of the beds they occupy.
(*c*) In the privies and cesspools which receive the discharges; and
(*d*) In the soil and subsoil waters which become secondarily contaminated.
4. The germ may be destroyed with no other interruption to travel and traffic than is needful to determine the likelihood of its presence and to apply the necessary measures for disinfection.

Guided by these principles, the National Board of Health organized the following system of preventive measures, and experience has confirmed its convictions that they comprise the essential sanitary acts necessary to the complete suppression of cholera.

1st. *International Coöperation.*—The Board early discovered that there would be serious practical difficulties in the administration of rules and regulations recommended by sanitary experience, and framed by the legislation of the country, to the end of preventing the introduction of foreign pestilence into the United States, without the consent, and, as far as possible, the aid and coöperation of other commercial nations. It accordingly took steps to secure this, and a conference was held under the joint authority of both houses of Congress.

The discussion proved that, of the twenty-seven nationalities represented, by far the larger number were prepared to enter into a formal joint treaty that would secure harmony of action in the enforcement of certain important measures for their mutual protection against an invasion by cholera. Too much importance cannot be attached to the coöperation of nations in measures of prevention against the spread of contagious and infectious diseases along the routes of travel and commerce.

2d. *Measures to be Adopted at Foreign Ports.*—The first act of the National Board of Health was to frame rules and regulations to be enforced at foreign ports, to secure the best sanitary condition of the vessels about to leave for a port of the United States.

This measure is the true basis of success in efforts to prevent the importation of contagious diseases. Ships are the great carriers and propagators of diseases of foreign origin. Crowded with passengers and freight, saturated with putrescent filth, and heated to the requisite temperature for the active growth and multiplication of the germs of disease, the modern emigrant ship is a fertile field for the cultivation of pestilence.

The rules and regulations prescribed by the Board required that each consular officer of the United States in a foreign port, or a medical officer specially detailed by the President for duty at the consulate, should keep himself thoroughly acquainted with the sanitary condition of the port and vicinity, especially with regard to the presence of cholera, yellow fever or plague, and of the existence of typhus or small-pox in epidemic form. On the request of any master, owner or agent he was required to make an inspection of any ship or vessel bound for the United States, and to give a certificate or bill of health based on the condition of the port and the result of the inspection. This examination into the sanitary condition of the vessel was required to be made before the cargo was taken on board. The

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certifying officer was directed to see that the vessel was dry, clean, free from decayed wood, and thoroughly disinfected if last from an infected port, or if the port of departure was itself infected. The shipment of merchandise or articles known to be infected was prohibited, and ballast was required to be approved by the certifying authorities. If the port was infected, the passengers underwent medical inspection not more than twenty-four hours before the signing of the bill of health, which was considered valid only if delivered within the twenty-four hours last preceding departure. The bill of health set forth the sanitary history and condition of the vessel; and if the bill was a clean bill, it was certified that the vessel left the port in free pratique; while if the bill was a foul bill, it was certified that the vessel left the port in quarantine.

A clean bill of health was authorized when the vessel's condition was satisfactory, and the port free from infection. A foul bill was given when on the contrary the port was infected, or the condition of the vessel unsatisfactory. In all cases of doubt as to the infection of the port, a foul bill was directed to be issued; but the existence of infection in the quarantine establishment of the port was not considered cause for a foul bill of health. On the departure of the vessel from an infected port, her name, date of sailing and port of destination were telegraphed to the Board by the certifying officers.

3d. *Sanitary Service at Sea.*—Second only in importance to securing at the foreign port a clean vessel and uninfected freight, with the crew and passengers in a healthy condition, is a sanitary service at sea that shall preserve the cleanliness of the ship, and the health of the crew and passengers, and arrest or isolate the first case of sickness. Every effort should at this time be made to induce steamship companies to hold their medical and other officers responsible for cleansing and ventilating their ships during the voyage, and for daily inquiry as to the health of every person on board. Diarrheal affections should be promptly isolated and carefully located, all intestinal discharges being immediately disinfected and thrown into the sea.

4th. *Measures Recommended to be Adopted on the Arrival of the Vessel at a United States Port.*—Although the word quarantine is in common use in connection with these measures, the Board in its use did not imply detention for any specified time, but only for such time as was needful to determine the presence or advance of infection in vessels arriving at our ports, and to effect, if present, its destruction or removal.

Every vessel should be visited by the quarantine officers, and if cholera or other infectious disease existed at the port of departure, or at any port at which she had touched during the voyage, or on any vessel with which she had come in contact, such of the crew and passengers as were infected should be removed to the hospital and the others to proper quarters. The clothing and baggage should be carefully disinfected, the cargo discharged and disinfected, and after the thorough cleansing and disinfection of the vessel the cargo may be reshipped and the vessel permitted to depart.

5th. *Sanitary Supervision of Travel and Transportation, Coastwise and Inland.*—If, notwithstanding these measures to exclude infection, the disease should effect an entrance into any of our ports [as small-pox and yellow fever had done] measures should be taken to prevent its spreading from that port to other ports on the coast, or to the interior points. Seacoast, river and railroad travel and transportation should be conducted under sanitary supervision. In the case of coast or river steamboats or vessels sailing from

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the infected port, measures of inspection and disinfection should be enforced similar to those practiced at foreign infected ports, the utmost cleanliness urged during the voyage, and the importance of frequent inquiry into the condition of the passengers and crew impressed upon the officers of the vessel.

In addition to this, inspection stations should be established at certain points, as they were on the Mississippi river with reference to yellow fever. The medical officers at these points acted as quarantine officers for the States threatened with invasion. Every vessel was boarded. Any change in her sanitary condition since leaving the port of departure was noted on her bill of health, or, if needful, she was moved to a refuge station for the isolation and treatment of the sick, and for the discharge of cargo and thorough disinfection prior to continuing her voyage. On the arrival of the vessel at the port of destination, she was subject to the action of the local authorities, who were recommended to adopt measures similar to those in force in the case of vessels arriving from foreign infected ports.

Railroad trains leaving an infected city, town, or other place, were required to be made up of unupholstered cars, which were fumigated with sulphuric acid for six hours prior to the hour of departure. (In view of the results of Koch's recent investigations into the causation of cholera, dry heat might be substituted for disinfection by chemical means in this and similar instances.) The baggage, freight and mail matter to be transported, were thoroughly disinfected, and the passengers inspected by a medical officer before starting. About five miles from the infected place, passengers and baggage were transferred to other cars, which had never been within the limits of the infected district. A second transfer was made at some point about fifty miles distant from the first transfer station. Freight was transferred at some station about fifty miles from the point of departure, and the unloaded cars returned to the infected place.

These measures, having in view the prevention of the importation and spread of the germs of the disease, were published in detail in the first issue of the Bulletin of the National Board of Health, June 28, 1879.

There is, however, another and highly important series of measures requiring consideration, in view of the possible introduction of the disease germs at some unguarded point. These consist of—

1st. Efforts to prevent the occurrence of an epidemic at the infected point by having it, at the time of the invasion, in such sanitary condition that the disease shall not spread on account of the absence of certain unhygienic factors necessary to its epidemic development. It is not needful to specify these measures of general sanitation, nor to point out that, to be efficacious, they must be put in force a long time before the introduction of the disease; for though surface cleanliness may be speedily effected, the purification of an impure soil is a work of time. But it seems proper to urge that, as any point may become an infected one, and not those alone which are, from their commercial relations, most liable to invasion, it is important that all points should be rendered, as far as practicable, unsuitable for the epidemic development of the disease.

2d. Efforts to suppress an epidemic at the infected point by perfecting all arrangements to meet it in advance of the occasion, as, (*a*) By providing a corps of officers to conduct a house-to-house visitation in the infected and threatened districts, for the purpose of discovering and treating cases of premonitory diarrhea, of giving instruction on all matters relating to food, drink, the disposal of excreta, etc., and of superintending the disinfection of clothing and premises. (*b*) By arranging for the establishment of camps

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or quarters in dry and well-drained localities for the accommodation of persons temporarily removed from badly-infected houses. (*c*) For arranging for the extemporization of small hospitals in the immediate neighborhood of the infected locality, and for the establishment of an ambulance system in connection therewith for the conveyance and reception of homeless cases, and of those from houses vacated for cleansing and fumigation as being dangerously infected.

In the discussion which followed the reading of Dr. Smart's paper, Dr. Covernton (Can.) gave a detailed account of the quarantine regulations adopted by the Canadian authorities with reference to the threatened invasion of Asiatic cholera.

Dr. Baker (Mich.) moved that all papers read be referred to a special committee of five for consideration, and to formulate a report based thereon, embodying the methods approved by the Conference for combatting cholera. The motion was carried, and the chairman appointed as such committee Drs. Baker (Mich.), Rauch (Ill.), Walcott (Mass.), Bryce (Ont.), and Herrick (La.)

The committee was instructed to report on the following day, after which the session was adjourned.

At the meeting of the succeeding day, the following among other proceedings were had:

Dr. McCormack (Ky.) thought the papers and discussions demonstrated the importance of such an organization as this. In the absence of a well-equipped national health service, our only protection against foreign invasion lies in systematic and effective work by the State boards; and the work will only be systematic and effective in this sense, where there is such hearty coöperation as frequent meetings and free interchange of opinions would give.

The committee appointed to prepare a report on the methods of combatting cholera, through its chairman, Dr. Baker (Mich.), presented the following:

PRACTICAL WORK REQUIRED FOR THE PREVENTION OF CHOLERA IN THIS COUNTRY.

There are three factors essential to the prevalence of cholera in this country as an epidemic: (1) The importation of the disease by means of ships, more or less directly from its only place of origin in India; (2) local unsanitary conditions favorable to the reception and development of the disease; (3) persons sick with the disease in some of its stages, or things infected by such sick persons, to carry it from place to place. These three factors naturally suggest the methods of combatting the disease, for which there is needed practical work, international, national, inter-State, State, and local. So far as relates to State and local boards of health, their organization and activities are greater than ever before; but it must be admitted that after cholera has been introduced into a country, inland quarantines are not easily and successfully maintained, although efforts in this direction are then advisable. In view of the threatened introduction of cholera into this country

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during the coming year, and the immense waste of life and property values which would thence result through derangements of commerce, trade and productive industries, it is the sense of this Conference that the general government should maintain such a national health service as shall, by rigid inspection at the port of embarkation, ascertain the condition as to disease and infection, of all persons and things from infected districts, and secure the surveillance of such persons and things while on shipboard, and, when necessary, their detention at quarantine stations on this side for treatment and disinfection.

In view of the present threatening aspect of Asiatic cholera, and the constant danger from other communicable diseases occurring at foreign ports having commercial relations with the United States, we urge upon Congress to provide for the appointment and maintenance of medical officers of health, at all foreign ports where cholera, yellow fever, plague, small-pox or other epidemic, contagious or infectious disease exists or threatens, such officers being either accredited consuls or attached to the consulates. The duties of these officers shall be: To give notice, by telegraph when practicable, of the existence or appearance of any of the above-named diseases, to some constituted authority in this country; to give notice of the departure of any vessel known or suspected to be infected, for any port in the United States; and, whenever requested by the master of any vessel about to load or leave for this country, to inspect thoroughly such vessel in all her parts, and also her cargo, her crew and passengers; to use such cleansing and disinfection as he may deem necessary, and to satisfy himself that all persons about to sail are free from dangerous communicable diseases, are not recently from infected places, and are properly protected from small-pox, giving to her commander a certificate of the inspection and of all precautionary measures taken. And it shall be the duty of the central authority in this country to promptly transmit intelligence of the existence of the above-mentioned diseases at foreign ports and places, and of the departure of dangerous vessels for the United States and Canada, to all State and local health authorities in the country which may be interested in the same. We further recommend, in case of those foreign ports which have no consular agents of this country, or no telegraphic communication with this country, and which are liable to transmit pestilence through commercial intercourse, that one or more medical officers be chosen to visit such ports as often as may be deemed necessary by the central health authority in this country, so as to give trustworthy information of the health and sanitary condition of those places.

Inasmuch as the Dominion of Canada is equally interested with the United States in protecting itself and the United States from the importation of dangerous diseases, we suggest that Congress take such measures as will bring about concerted action with the Dominion and the British government, by which the consuls of this country or of England at foreign ports shall examine and take such action as they may deem effective, and notify the authorities of such government as has authority over any port to which any ship may sail in the United States or Canada, in order that such government may be in a position to take effective measures against the importation of these diseases. We are gratified that the authorities of the Dominion of Canada and of the Province of Ontario have taken active steps toward protecting the people of Canada, and, indirectly, those of the United States, by the adoption of judicious quarantine regulations. We feel, however, that with respect to those regulations regarding the landing of pas-

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sengers from the mail steamers along the St. Lawrence, etc., further special regulations for the thorough disinfection of the baggage and effects of all passengers, cabin or steerage, who come from infected ports or places, should be carried out in a manner similar to that recommended by the National Board of Health. Believing that the importation of cholera into this country has usually followed the arrival of immigrants from infected countries, we therefore recommend that all such immigrants be prevented from landing at our ports until such time as the danger of the introduction of cholera by them shall have passed.

The inspection and quarantine service inaugurated by the National Board of Health, and set forth in the paper of Dr. Smart before this Conference, but which system is now inoperative for want of an appropriation by Congress, meets with our cordial approval. To enable these protective measures to be carried out, we recommend that Congress be urged in the strongest terms to legislate on this subject at an early date in its coming session, and to appropriate such funds as may be needful. The expenses incident to the work which has to be performed at foreign ports, and the establishment of refuge stations at points on our coast for the detention and treatment of infected vessels arriving from foreign ports, should undoubtedly be borne by the National Government, and not by individual States or municipalities; for the benefits accruing therefrom are general, and not restricted to localities, although some ports and cities on the coast may have a more immediate interest in the matter than others in the interior.

It is probable, however, that this national protective work may not be sufficient. It will, undoubtedly, delay and lessen the chances of invasion, but it may not suffice to prevent invasion; the poison of the disease is subtle, and may effect an entrance into the country at some unguarded point. The funds necessary for stamping out the disease in a particular locality, and for preventing its spread to other localities, might in some instances be borne by the municipality or State affected; but should the disease occur in a locality which has failed or is unable to make provision for the occurrence, its spread to other cities and States would be imminent. The want of means at the infected point would be disastrous to many others. Congress has recognized the necessity for aid to State and local boards of health under similar conditions in the case of yellow fever. In 1879 the sum of $500,000 was appropriated and placed at the disposal of the National Board of Health; and the records show that of this sum $160,000 was wisely and successfully employed in combatting the epidemic of that year. We therefore recommend that the influence of this Conference be used with the view of having appropriated by the National Legislature the sum of $500,000, to be used, or as much thereof as may be needful, in case of a cholera invasion, in stamping out the disease from the infected localities, and in preventing its spread from State to State.

The removal of local unsanitary conditions favorable to the development of cholera is the especial work of State and local boards of health. Much has been done already in some States, but much remains which should receive immediate attention. Where it can be done, State sanitary inspectors should be appointed to visit all towns and cities specially liable to the disease, to counsel with the local authorities as to the best methods of prevention. This work should be vigorously prosecuted before the disease reaches our shores. Health officers and inspectors appointed by State or Provincial boards of health should, in addition to other sanitary work, see that the localities have set apart, erected or planned to be set apart or erected, struc-

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tures which shall possess the sanitary requirements of an isolation hospital. But as regards all necessary work by local boards of health, most State and Provincial boards of health have already printed and issued documents which give ample instruction.

The cause of cholera is contained in the discharges from persons affected by the disease or in things infected by such discharges. Should the disease reach our shores, the first case, and after this the first case which reaches any given community, should be strictly isolated; all infective material from these and from any subsequent cases should be destroyed in such manner as to stamp out the disease. Intelligent sanitary precautions beforehand and scientific disinfection and treatment in the presence of the disease, should take the place of the inevitable cruelties of a panic. In case any city or town is infected, the same principles of isolation should in general be applied to the city as to the infected individual. Intercourse with other cities and places should be under sanitary supervision, substantially as set forth in the rules and regulations of the National Board of Health, respecting the inspection of travelers, disinfection of effects, vehicles, etc.

Your committee recommends that when this Conference adjourns it be to meet in Washington, D. C., the second Wednesday in December next; and that the Secretary of this Conference be directed to invite the attendance at that time of the quarantine officers and health officers of the principal cities in the United States and Canada, and that all delegates to that meeting be prepared to report the sanitary status of their States or localities, and what steps have been taken to improve the same, and to prevent the introduction of disease.

All of which is respectfully submitted.

HENRY B. BAKER.
JOHN H. RAUCH.
H. P. WALCOTT.
P. H. BRYCE.
S. S. HERRICK.

The report was discussed at length, chiefly in a spirit of commendation, and especially as to the importance and the best methods of securing action on the subject at an early day in the next session of Congress. After the discussion had been carried on for some time, Dr. Chancellor (Md.) said he believed in the majority ruling, and if it should appear that most of the States indorsed the recommendations of the committee, he also would vote for them.

On a formal ballot being taken, all the States voted for the approval of the report, save Minnesota, the representatives of that State making the point that the paper was so important that more time should be taken for its consideration.

After making arrangements for the order in which the Conference and the individual Boards should make their reports to the American Public Health Association on the following day, the Conference adjourned to meet in Washington, D.C., on Wednesday, December 10th, 1884.

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INDORSEMENT OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

The draft of recommendations for practical work to be done to prevent the entrance and spread of cholera in the United States was presented to the American Public Health Association, on behalf of the National Conference of State Boards of Health, at the Wednesday afternoon session of the Association.

Drs. Hunt, of New Jersey, and Devron, of Louisiana, favored the adoption and publication of the recommendations by the Association.

Dr. Pinckney Thompson, of Kentucky, considered internal quarantine or sanitary cordons of very little use in stamping out cholera, when the disease had once effected an entrance into the country.

Hon. Erastus Brooks, of New York, moved that the communication be indorsed by the Association, printed, and copies be forwarded to the President of the United States and his Cabinet, and to each of the Senators and Representatives in the national Congress.

Dr. Watson, of New Hampshire, moved as an amendment, that a sufficient number of copies of this report be sent to the health officers of the different cities, to the Secretaries of the various State Boards of Health, and to the officers of the Dominion of Canada and of the Provincial Board of Ontario.

The motion as amended was adopted.

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